AC Servo Motor Driver

LECYM/LECYU Series

MECHATROLINK Compatible

CE RoHS

Power supply voltage (V)
200 to 230 VAC

Motor capacity (W)
100/200/400

- Position control, speed control and torque control can be used.
- Control encoder: Absolute 20-bit encoder (Resolution: 1048576 p/rev)

MECHATROLINK-Ⅱ Type — *LECYM Series* Page 766

- Applicable Fieldbus protocol: MECHATROLINK-Ⅱ
- Number of connectable drivers: 30 units (Transmission distance: Max. 50 m in total)

Max. transmission speed: 10 Mbps

Min. transmission cycle: 250 μs

MECHATROLINK-Ⅲ Type — *LECYU Series* Page 766

- Applicable Fieldbus protocol: MECHATROLINK-Ⅲ
- Number of connectable drivers: 62 units (Transmission distance: Max. 75 m between stations)

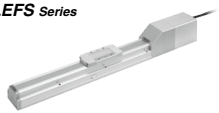
Max. transmission speed: 100 Mbps

Min. transmission cycle: 125 μs

Compatible Actuators

Slider Type Pages 664, 682

Ball screw drive
***LEFS** Series*



Size	Max. work load [kg]	Stroke [mm]
25	20	Up to 800
32	45	Up to 1000
40	60	Up to 1200

Belt drive
***LEFB** Series*

Size	Max. work load [kg]	Stroke [mm]
25	5	Up to 2000
32	15	Up to 2500
40	25	Up to 3000

High Rigidity Slider Type Page 702

Ball screw drive
***LEJS** Series*

Size	Max. work load [kg]	Stroke [mm]
40	55	Up to 1200
63	85	Up to 1500

Belt drive
***LEJB** Series*

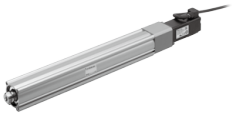
Size	Max. work load [kg]	Stroke [mm]
40	20	Up to 2000
63	30	Up to 3000

Rod Type Page 730

Basic type
***LEY** Series*

Size	Pushing force [N]	Stroke [mm]
25	485	Up to 400
32	588	Up to 500
63	3343	Up to 800

In-line motor type
***LEY□D** Series*



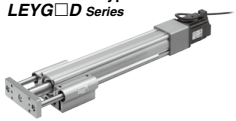
Size	Pushing force [N]	Stroke [mm]
25	485	Up to 400
32	736	Up to 500
63	1910	Up to 800

Guide Rod Type Page 746

Guide rod type
***LEYG** Series*

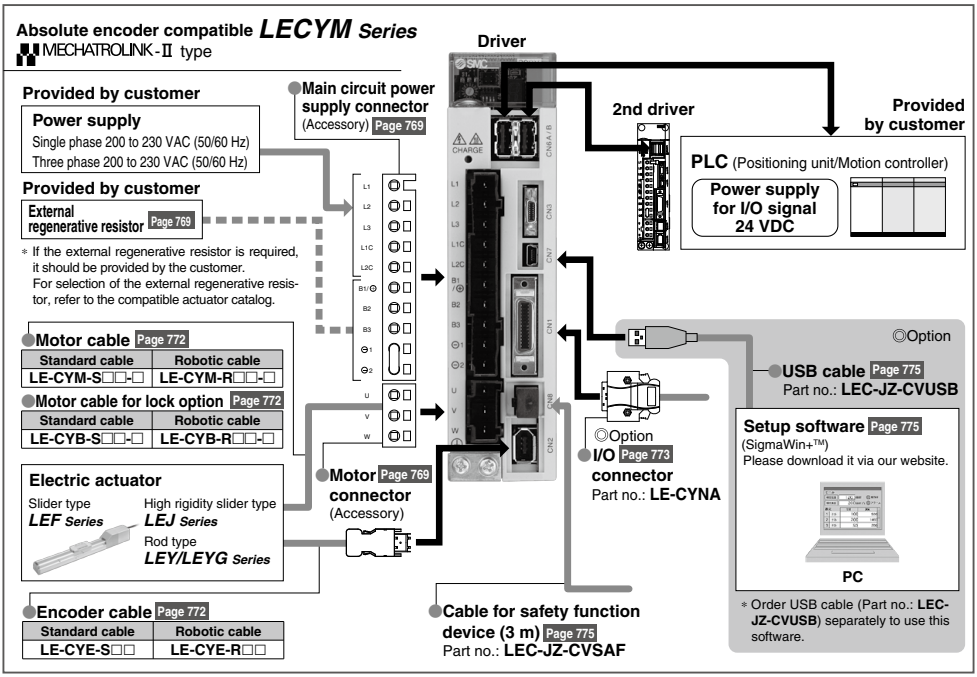
Size	Pushing force [N]	Stroke [mm]
25	485	Up to 300
32	588	

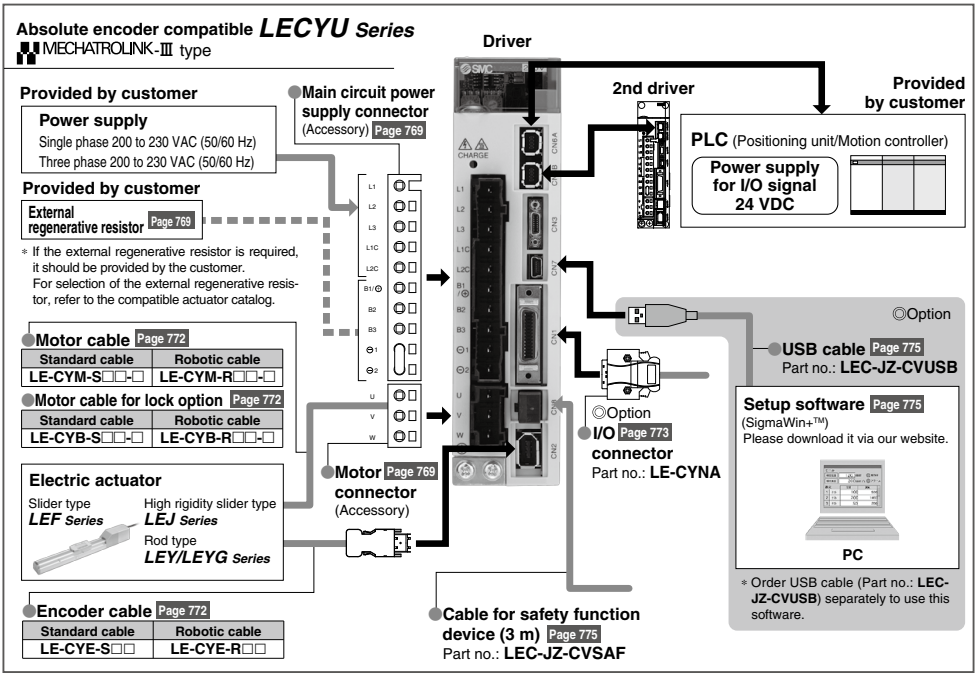
Guide rod type/
In-line motor type
***LEYG□D** Series*



Size	Pushing force [N]	Stroke [mm]
25	485	Up to 300
32	736	

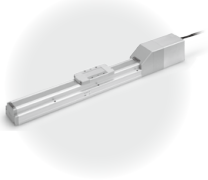
System Construction



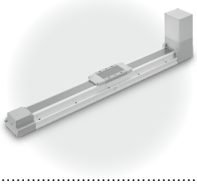


MECHATROLINK Compatible AC Servo Motor Driver

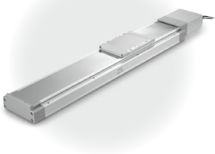
◎Electric Actuator/ Slider Type, Ball Screw Drive *LEFS Series*



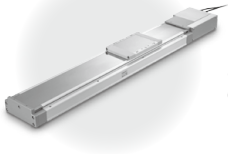
◎Electric Actuator/ Slider Type, Belt Drive *LEFB Series*



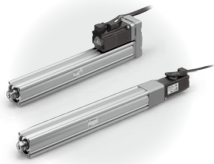
◎Electric Actuator/ High Rigidity Slider Type, Ball Screw Drive *LEJS Series*



◎Electric Actuator/ High Rigidity Slider Type, Belt Drive *LEJB Series*



◎Electric Actuator/Rod Type *LEY Series*

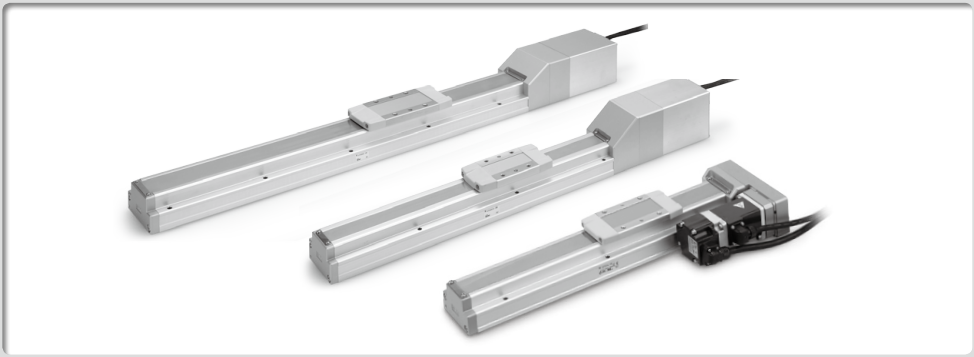


◎Electric Actuator/Guide Rod Type *LEYG Series*

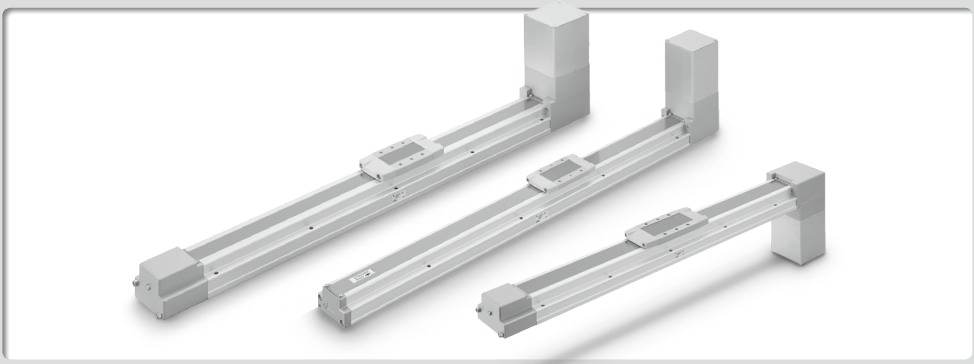
◎AC Servo Motor Driver *LECYM/LECYU Series*

AC Servo Motor

Ball Screw Drive *LEFS Series*



Belt Drive *LEFB Series*



AC Servo Motor Driver *LECYM/LECYU Series*

Model Selection

LEFS Series ▶ Page 672

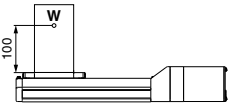
Selection Procedure

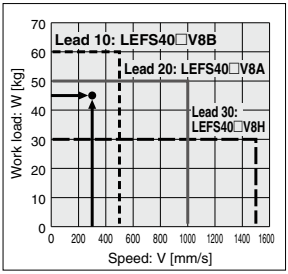
Step 1 Check the work load–speed. → **Step 2** Check the cycle time. → **Step 3** Check the allowable moment.

Selection Example

Operating conditions

- Workpiece mass: 45 [kg]
- Speed: 300 [mm/s]
- Acceleration/Deceleration: 3000 [mm/s^2]
- Stroke: 200 [mm]
- Mounting position: Horizontal upward
- Workpiece mounting condition:





<Speed–Work load graph> (LEFS40)

Step 1 **Check the work load–speed. <Speed–Work load graph>** (Page 665)

Select the target model based on the workpiece mass and speed with reference to the <Speed–Work load graph>.

Selection example) The **LEFS40V8B-200** is temporarily selected based on the graph shown on the right side.

Step 2 **Check the cycle time.**

Calculate the cycle time using the following calculation method.

Cycle time:

T can be found from the following equation.

$T = T1 + T2 + T3 + T4$ [s]

- T1: Acceleration time and T3: Deceleration time can be obtained by the following equation.

$T1 = V/a1$ [s] $T3 = V/a2$ [s]

- T2: Constant speed time can be found from the following equation.

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} \text{ [s]}$$

- T4: Settling time varies depending on the motor type and load. The value below is recommended.

$T4 = 0.05$ [s]

Calculation example)
T1 to T4 can be calculated as follows.

$T1 = V/a1 = 300/3000 = 0.1$ [s],

$T3 = V/a2 = 300/3000 = 0.1$ [s]

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V}$$

$$= \frac{200 - 0.5 \cdot 300 \cdot (0.1 + 0.1)}{300}$$

$= 0.57$ [s]

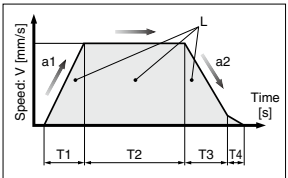
$T4 = 0.05$ [s]

Therefore, the cycle time can be obtained as follows.

$T = T1 + T2 + T3 + T4$

$= 0.1 + 0.57 + 0.1 + 0.05$

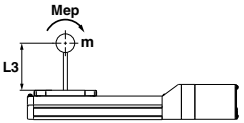
$=$ **0.82 [s]**

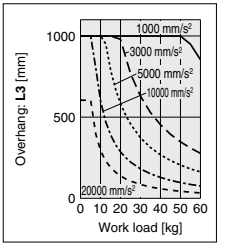


L : Stroke [mm]
··· (Operating condition)
V : Speed [mm/s]
··· (Operating condition)
a1: Acceleration [mm/s^2]
··· (Operating condition)
a2: Deceleration [mm/s^2]
··· (Operating condition)

T1: Acceleration time [s]
Time until reaching the set speed
T2: Constant speed time [s]
Time while the actuator is operating at a constant speed
T3: Deceleration time [s]
Time from the beginning of the constant speed operation to stop
T4: Settling time [s]
Time until positioning is completed

Step 3 **Check the guide moment.**





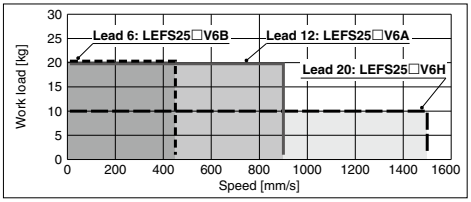
Based on the above calculation result, the LEFS40V8B-200 is selected.

Speed–Work Load Graph/Conditions for "Regenerative Resistor" (Guide)

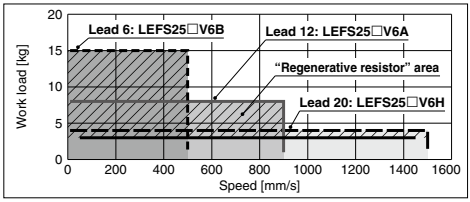
∗ The allowable speed is restricted depending on the stroke. Select it by referring to "Allowable Stroke Speed" below.

LEFS25/Ball Screw Drive

Horizontal

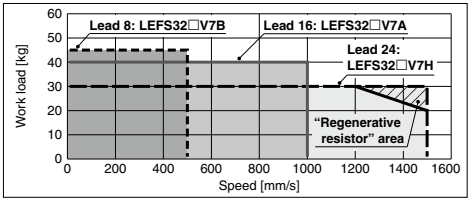


Vertical

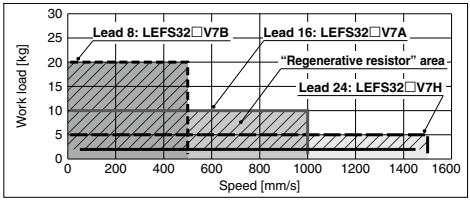


LEFS32/Ball Screw Drive

Horizontal

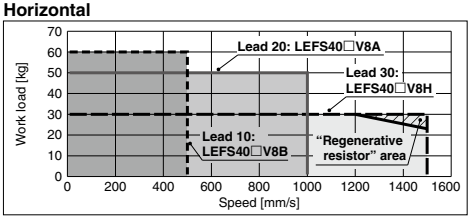


Vertical

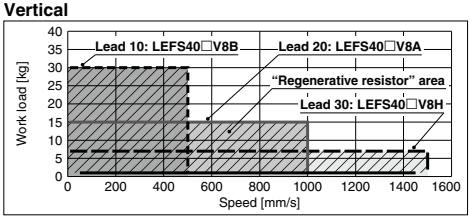


LEFS40/Ball Screw Drive

Horizontal



Vertical



"Regenerative resistor" area

∗ When using the actuator in the "Regenerative resistor" area, download the "AC servo capacity selection program/SigmaJunmaSize+" from the SMC website. Then, calculate the necessary regenerative resistor capacity to prepare an appropriate external regenerative resistor.
∗ Regenerative resistor should be provided by the customer.

Applicable Motor/Driver

Model	Applicable model	
	Motor	Servopack (SMC driver)
LEFS25□	SGMJV-01A3A	SGDV-R90A11□ (LECYM2-V5) SGDV-R90A21□ (LECYU2-V5)
LEFS32□	SGMJV-02A3A	SGDV-1R6A11□ (LECYM2-V7) SGDV-1R6A21□ (LECYU2-V7)
LEFS40□	SGMJV-04A3A	SGDV-2R8A11□ (LECYM2-V8) SGDV-2R8A21□ (LECYU2-V8)

Allowable Stroke Speed

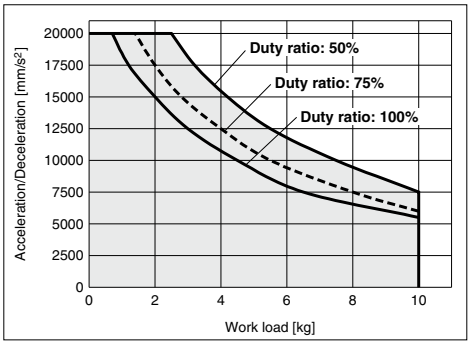
[mm/s]

Model	AC servo motor	Lead		Stroke [mm]											
		Symbol	[mm]	Up to 100	Up to 200	Up to 300	Up to 400	Up to 500	Up to 600	Up to 700	Up to 800	Up to 900	Up to 1000	Up to 1100	Up to 1200
LEFS25	100 W /□40	H	20	1500				1200	900	700	550	—	—	—	—
		A	12	900				720	540	420	330	—	—	—	—
		B	6	450				360	270	210	160	—	—	—	—
		(Motor rotation speed)		(4500 rpm)				(3650 rpm)	(2700 rpm)	(2100 rpm)	(1650 rpm)	—	—	—	—
LEFS32	200 W /□60	H	24	1500					1200	930	750	610	510	—	—
		A	16	1000					800	620	500	410	340	—	—
		B	8	500					400	310	250	200	170	—	—
		(Motor rotation speed)		(3750 rpm)					(3000 rpm)	(2325 rpm)	(1875 rpm)	(1537 rpm)	(1275 rpm)	—	—
LEFS40	400 W /□60	H	30	—	1500					1410	1140	930	780	500	500
		A	20	—	1000					940	760	620	520	440	380
		B	10	—	500					470	380	310	260	220	190
		(Motor rotation speed)		—	(3000 rpm)					(2820 rpm)	(2280 rpm)	(1860 rpm)	(1560 rpm)	(1320 rpm)	(1140 rpm)

Work Load–Acceleration/Deceleration Graph (Guide)

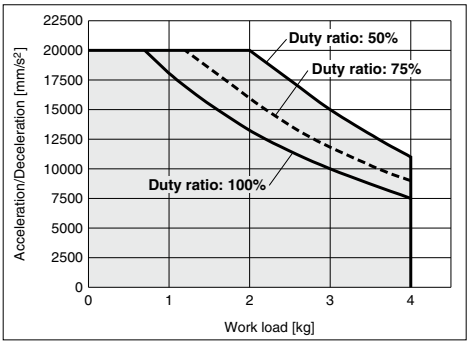
LEFS25□V6H/Ball Screw Drive

Horizontal



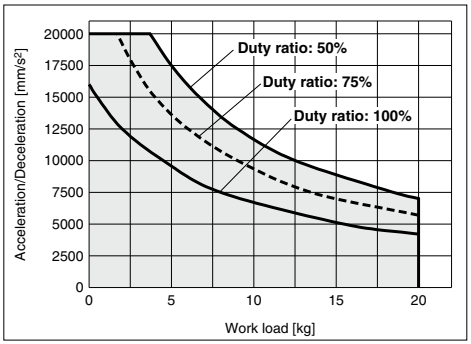
LEFS25□V6H/Ball Screw Drive

Vertical



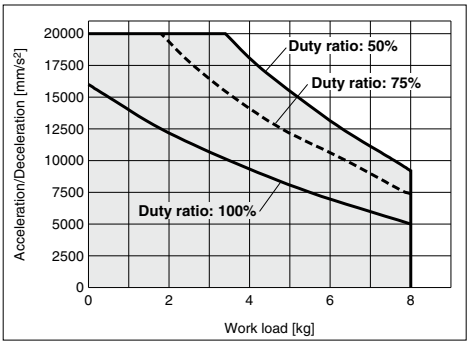
LEFS25□V6A/Ball Screw Drive

Horizontal



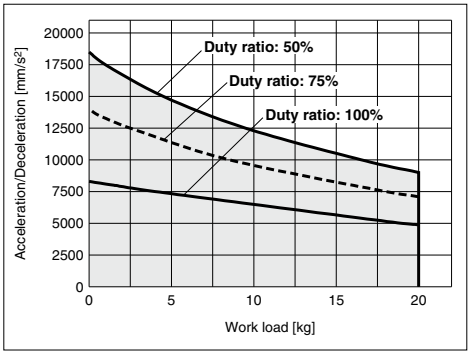
LEFS25□V6A/Ball Screw Drive

Vertical



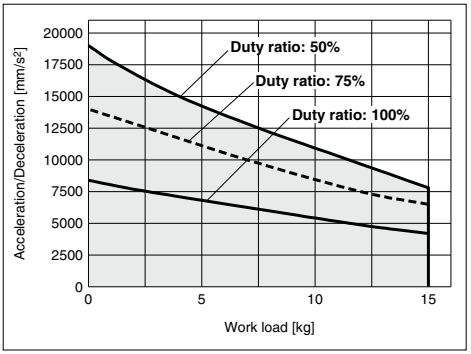
LEFS25□V6B/Ball Screw Drive

Horizontal



LEFS25□V6B/Ball Screw Drive

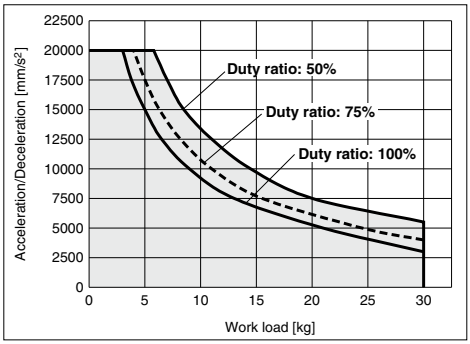
Vertical



Work Load–Acceleration/Deceleration Graph (Guide)

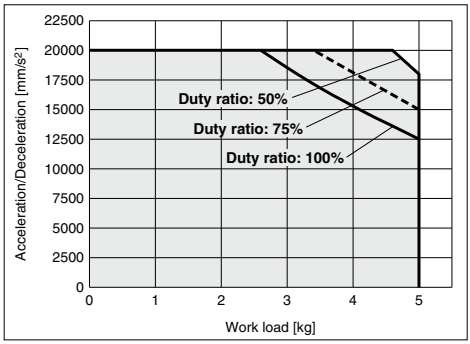
LEFS32□V7H/Ball Screw Drive

Horizontal



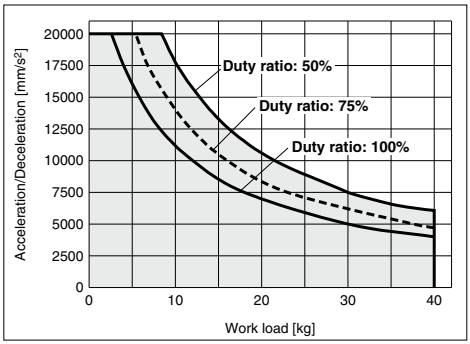
LEFS32□V7H/Ball Screw Drive

Vertical



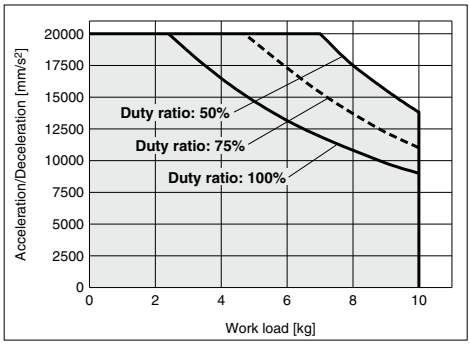
LEFS32□V7A/Ball Screw Drive

Horizontal



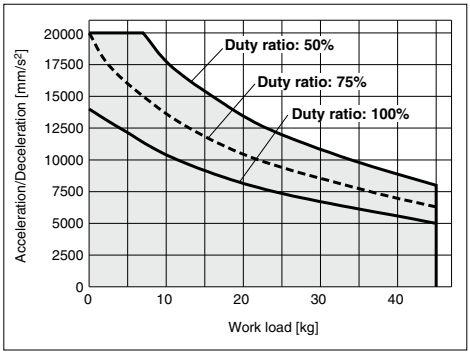
LEFS32□V7A/Ball Screw Drive

Vertical



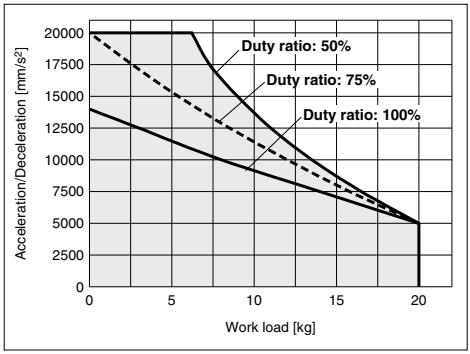
LEFS32□V7B/Ball Screw Drive

Horizontal



LEFS32□V7B/Ball Screw Drive

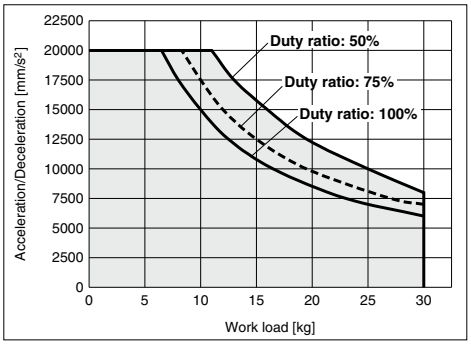
Vertical



Work Load–Acceleration/Deceleration Graph (Guide)

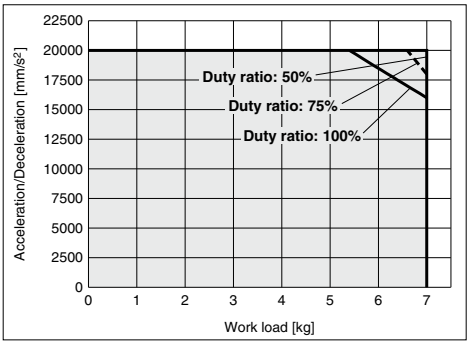
LEFS40□V8H/Ball Screw Drive

Horizontal



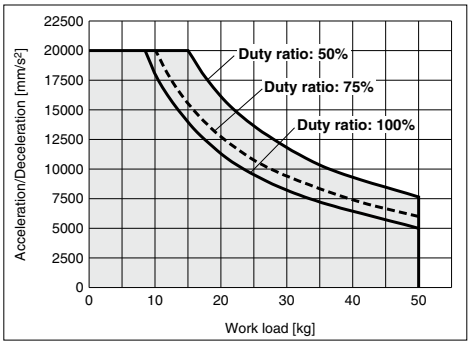
LEFS40□V8H/Ball Screw Drive

Vertical



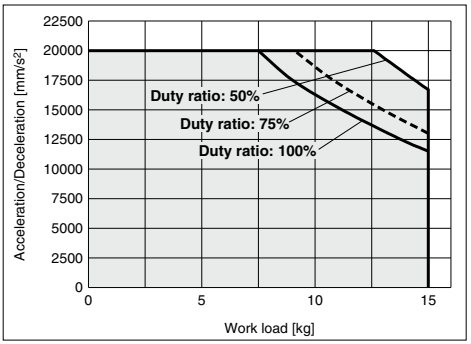
LEFS40□V8A/Ball Screw Drive

Horizontal



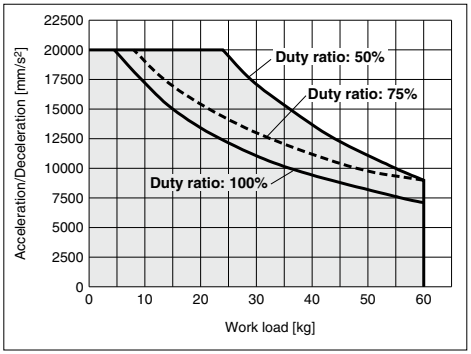
LEFS40□V8A/Ball Screw Drive

Vertical



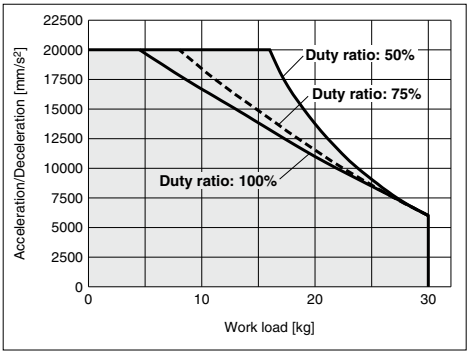
LEFS40□V8B/Ball Screw Drive

Horizontal



LEFS40□V8B/Ball Screw Drive

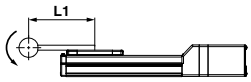
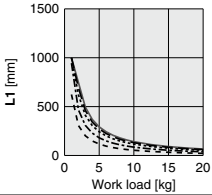
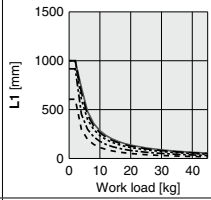
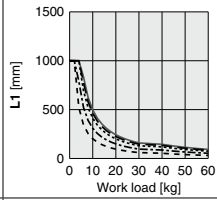
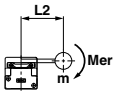
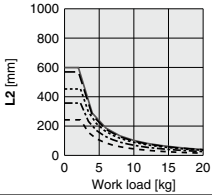
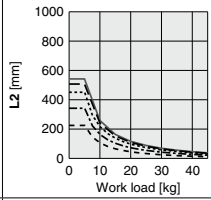
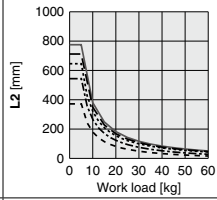
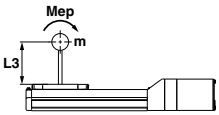
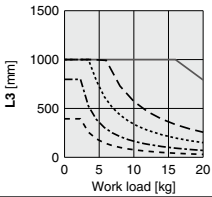
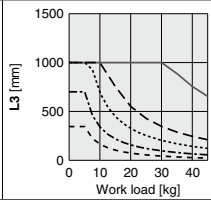
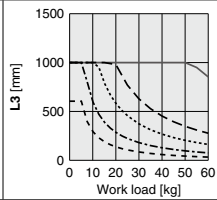
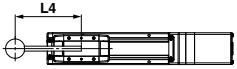
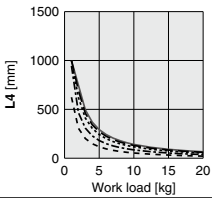
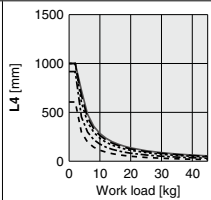
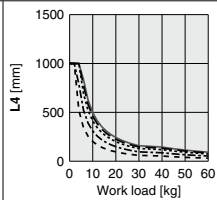
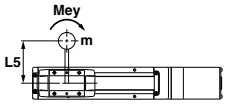
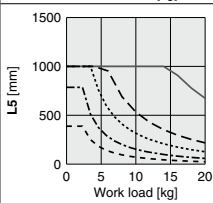
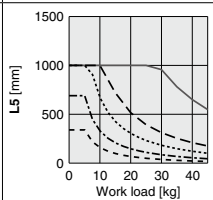
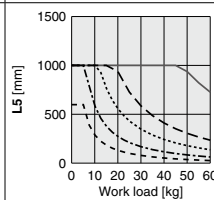
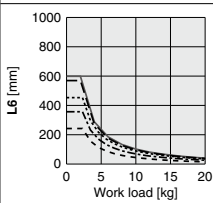
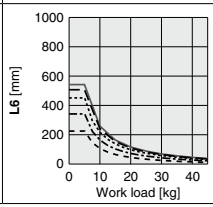
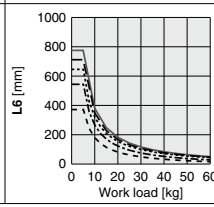
Vertical



Dynamic Allowable Moment

* This graph shows the amount of allowable overhang (guide unit) when the center of gravity of the workpiece overhangs in one direction. When selecting the overhang, refer to "Calculation of Guide Load Factor" or the Electric Actuator Selection Software for confirmation, http://www.smcworld.com

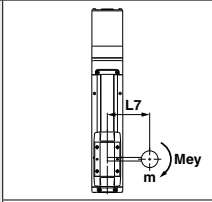
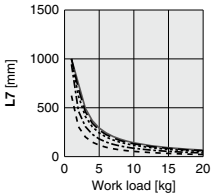
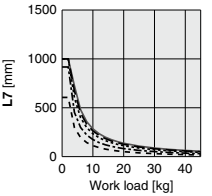
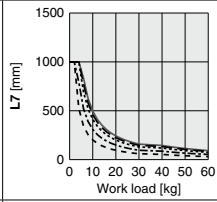
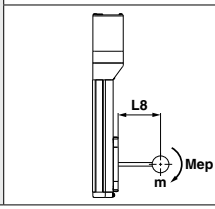
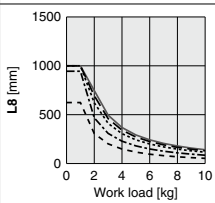
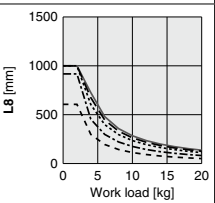
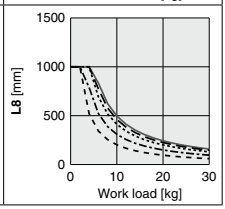
Acceleration/Deceleration ——1000 mm/s² — — —3000 mm/s² ·····5000 mm/s² –·–·–10000 mm/s² - - - - 20000 mm/s²

Orientation	Load overhanging direction **m** : Work load [kg] **Me**: Dynamic allowable moment [N·m] **L** : Overhang to the work load center of gravity [mm]		Model LEFS25□V6	Model LEFS32□V7	Model LEFS40□V8
Horizontal/Bottom		X			
		Y			
		Z			
Wall		X			
		Y			
		Z			

Dynamic Allowable Moment

* This graph shows the amount of allowable overhang (guide unit) when the center of gravity of the workpiece overhangs in one direction. When selecting the overhang, refer to "Calculation of Guide Load Factor" or the Electric Actuator Selection Software for confirmation, http://www.smcworld.com

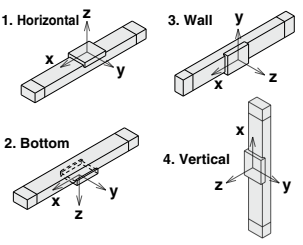
Acceleration/Deceleration ——1000 mm/s² — — —3000 mm/s² ·····5000 mm/s² –·–·–10000 mm/s² - - - - 20000 mm/s²

Orientation	Load overhanging direction **m** : Work load [kg] **Me**: Dynamic allowable moment [N·m] **L** : Overhang to the work load center of gravity [mm]		Model LEFS25□V6	Model LEFS32□V7	Model LEFS40□V8
Vertical		Y			
		Z			

Calculation of Guide Load Factor

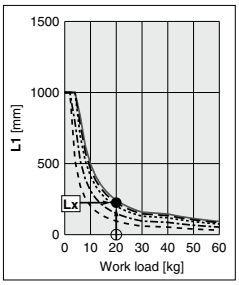
1. Decide operating conditions.
   Model: LEFS
   Size: 25/32/40
   Mounting orientation: Horizontal/Bottom/Wall/Vertical
   Acceleration [mm/s²]: **a**
   Work load [kg]: **m**
   Work load center position [mm]: **Xc/Yc/Zc**
2. Select the target graph with reference to the model, size and mounting orientation.
3. Based on the acceleration and work load, obtain the overhang [mm]: **Lx/Ly/Lz** from the graph.
4. Calculate the load factor for each direction.
   α**x = Xc/Lx**, α**y = Yc/Ly**, α**z = Zc/Lz**
5. Confirm the total of α**x**, α**y** and α**z** is 1 or less.
   α**x + αy + αz ≤ 1**
   When 1 is exceeded, please consider a reduction of acceleration and work load, or a change of the work load center position and series.

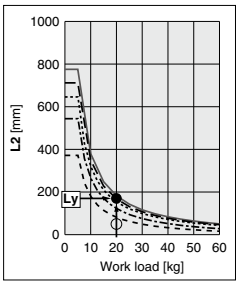
Mounting orientation



Example

1. Operating conditions
   Model: LEFS40
   Size: 40
   Mounting orientation: Horizontal
   Acceleration [mm/s²]: 3000
   Work load [kg]: 20
   Work load center position [mm]: **Xc = 0**, **Yc = 50**, **Zc = 200**
2. Select the graphs for horizontal of the LEFS40 on page 669.
3. **Lx = 250 mm**, **Ly = 180 mm**, **Lz = 1000 mm**
4. The load factor for each direction can be obtained as follows.
   α**x = 0/250 = 0**
   α**y = 50/180 = 0.27**
   α**z = 200/1000 = 0.2**
5. α**x + αy + αz = 0.47 ≤ 1**





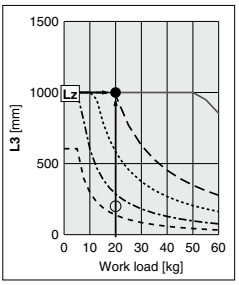
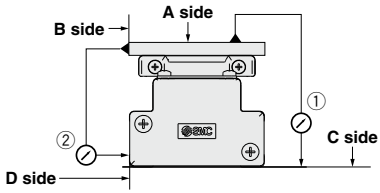


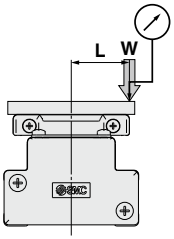
Table Accuracy (Reference Value)

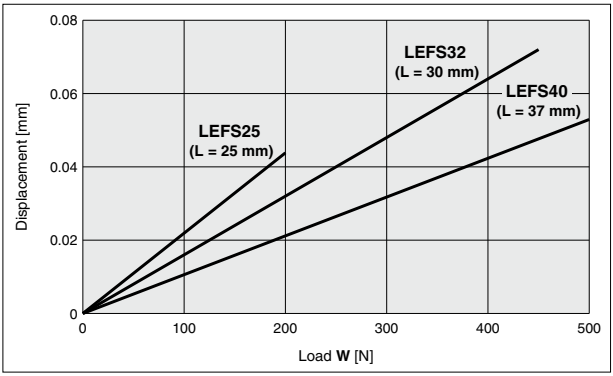


Model	Traveling parallelism [mm] (Every 300 mm)	
	① C side traveling parallelism to A side	② D side traveling parallelism to B side
LEFS25	0.05	0.03
LEFS32	0.05	0.03
LEFS40	0.05	0.03

Note) Traveling parallelism does not include the mounting surface accuracy.

Table Displacement (Reference Value)

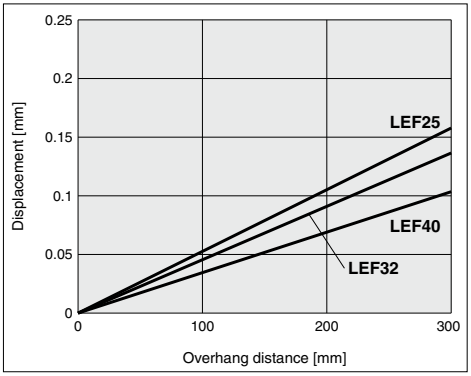




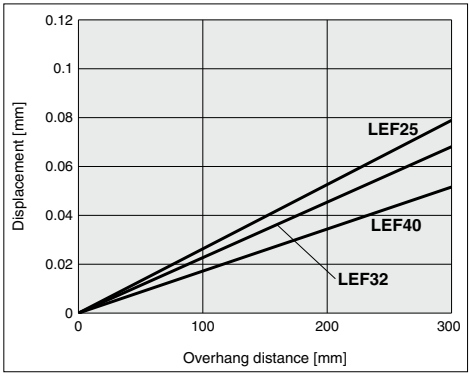
Note 1) This displacement is measured when a 15 mm aluminum plate is mounted and fixed on the table.
Note 2) Check the clearance and play of the guide separately.

Overhang Displacement Due to Table Clearance (Reference Value)

Basic type

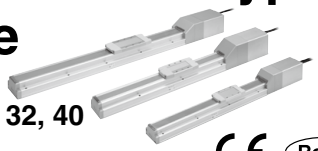


High precision type



Electric Actuator/Slider Type
Ball Screw Drive

LEFS Series LEFS25, 32, 40



CE RoHS

Please contact SMC for clean room specification and the models compatible with secondary batteries.

How to Order

LEFS H 32 R V7 B – 200 B – S 3 M2 ⓫

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❶ Accuracy

Nil	Basic type
H	High precision type

❷ Size

25
32
40

❸ Motor mounting position

Nil	In-line
R	Right side parallel
L	Left side parallel

❹ Motor type

Symbol	Type	Output [W]	Size	Compatible driver
V6	AC servo motor (Absolute encoder)	100	25	LECYM2-V5/LECYU2-V5
V7		200	32	LECYM2-V7/LECYU2-V7
V8		400	40	LECYM2-V8/LECYU2-V8

❺ Lead [mm]

Symbol	LEFS25	LEFS32	LEFS40
H	20	24	30
A	12	16	20
B	6	8	10

❻ Stroke [mm]

50	50
to	to
1200	1200

❼ Motor option

Nil	Without option
B	With lock

❽ Cable type

Nil	Without cable
S	Standard cable
R	Robotic cable (Flexible cable)

❾ Actuator cable length [m]

Nil	Without cable
3	3
5	5
A	10
C	20

❿ Driver type

	Compatible driver	Power supply voltage [V]
Nil	Without driver	—
M2	LECYM2-V□	200 to 230
U2	LECYU2-V□	200 to 230

⓫ I/O cable length [m] *

Nil	Without cable
H	Without cable (Connector only)
1	1.5

* When "Without driver" is selected for driver type, only "Nil: Without cable" can be selected. Refer to page 773 if I/O cable is required. (Options are shown on page 773.)

Applicable Stroke Table

●: Standard

Model \ Stroke [mm]	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1100	1200
LEFS25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	—	—	—	—	—	—
LEFS32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	—	—
LEFS40	—	—	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

* Please consult with SMC for non-standard strokes as they are produced as special orders.

Compatible Driver

Driver type	MECHATROLINK-Ⅱ type 	MECHATROLINK-Ⅲ type 
Series	**LECYM**	**LECYU**
Applicable network	MECHATROLINK-Ⅱ	MECHATROLINK-Ⅲ
Control encoder	Absolute 20-bit encoder	
Communication device	USB communication, RS-422 communication	
Power supply voltage [V]	200 to 230 VAC (50/60 Hz)	
Reference page	Page 766	

Specifications

AC Servo Motor

	Model		LEFS25□V6			LEFS32□V7			LEFS40□V8		
Actuator specifications	Stroke [mm] Note 1)		50 to 800			50 to 1000			150 to 1200		
	Work load [kg] Note 2)	Horizontal	10	20	20	30	40	45	30	50	60
		Vertical	4	8	15	5	10	20	7	15	30
	Max. speed [mm/s] Note 3)	Up to 400	1500	900	450	1500	1000	500	1500	1000	500
		401 to 500	1200	720	360	1500	1000	500	1500	1000	500
		501 to 600	900	540	270	1200	800	400	1500	1000	500
		601 to 700	700	420	210	930	620	310	1410	940	470
		701 to 800	550	330	160	750	500	250	1140	760	380
		801 to 900	—	—	—	610	410	200	930	620	310
		901 to 1000	—	—	—	510	340	170	780	520	260
		1001 to 1100	—	—	—	—	—	—	500	440	220
		1101 to 1200	—	—	—	—	—	—	500	380	190
	Max. acceleration/deceleration [mm/s²]		20000 (Refer to pages 666 to 668 for limit according to work load and duty ratio.)								
	Positioning repeatability [mm]	Basic type	±0.02								
		High precision type	±0.01								
	Lost motion [mm] Note 4)	Basic type	0.1 or less								
		High precision type	0.05 or less								
	Lead [mm]		20	12	6	24	16	8	30	20	10
	Impact/Vibration resistance [m/s²] Note 5)		50/20								
	Actuation type		Ball screw (LEFS□), Ball screw + Belt (LEFS□B)								
	Guide type		Linear guide								
	Operating temperature range [°C]		5 to 40								
	Operating humidity range [%RH]		90 or less (No condensation)								
Electric specifications	Motor output/Size		100 W/□40			200 W/□60			400 W/□60		
	Motor type		AC servo motor (200 VAC)								
	Encoder		Absolute 20-bit encoder (Resolution: 1048576 p/rev)								
	Power consumption [W] Note 6)	Horizontal	45			65			210		
		Vertical	145			175			230		
	Standby power consumption when operating [W] Note 7)	Horizontal	2			2			2		
		Vertical	8			8			18		
	Max. instantaneous power consumption [W] Note 8)		445			725			1275		
Lock unit specifications	Type Note 9)		Non-magnetizing lock								
	Holding force [N]		78	131	255	131	197	385	220	330	660
	Power consumption at 20°C [W] Note 10)		5.5			6			6		
	Rated voltage [V]		24 VDC ±10%								

Note 1) Please consult with SMC for non-standard strokes as they are produced as special orders.
Note 2) For details, refer to "Speed–Work Load Graph (Guide)" on page 665.
Note 3) The allowable speed changes according to the stroke.
Note 4) A reference value for correcting an error in reciprocal operation.
Note 5) Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. Test was performed in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
Note 6) The power consumption (including the driver) is for when the actuator is operating.
Note 7) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.
Note 8) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.
Note 9) Only when motor option "With lock" is selected.
Note 10) For an actuator with lock, add the power consumption for the lock.

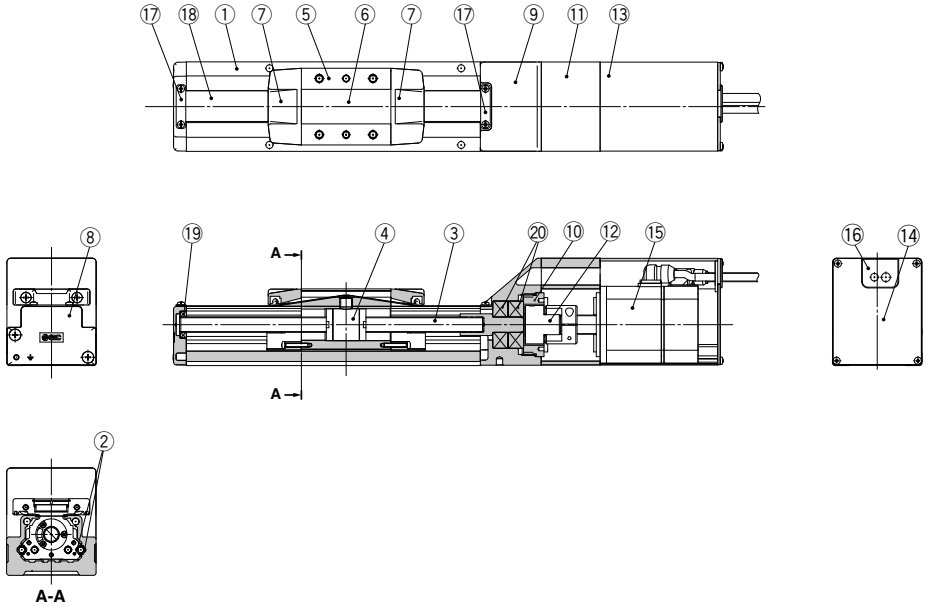
Weight

Series	LEFS25□V6															
Stroke [mm]	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Product weight [kg]	2.06	2.20	2.34	2.50	2.62	2.75	2.90	3.05	3.18	3.30	3.46	3.60	3.74	3.88	4.02	4.20
Additional weight with lock [kg]	0.3															

Series	LEFS32□V7																				
Stroke [mm]	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
Product weight [kg]	3.40	3.60	3.80	4.00	4.20	4.40	4.60	4.80	5.00	5.20	5.40	5.60	5.80	6.00	6.20	6.40	6.60	6.80	7.00	7.20
Additional weight with lock [kg]	0.7																			

Series	LEFS40□V8																				
Stroke [mm]	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1100	1200
Product weight [kg]	5.92	6.20	6.48	6.75	7.05	7.35	7.61	7.90	8.17	8.35	8.73	9.00	9.30	9.55	9.86	10.15	10.42	10.70	11.26	11.82
Additional weight with lock [kg]	0.7																			

Construction



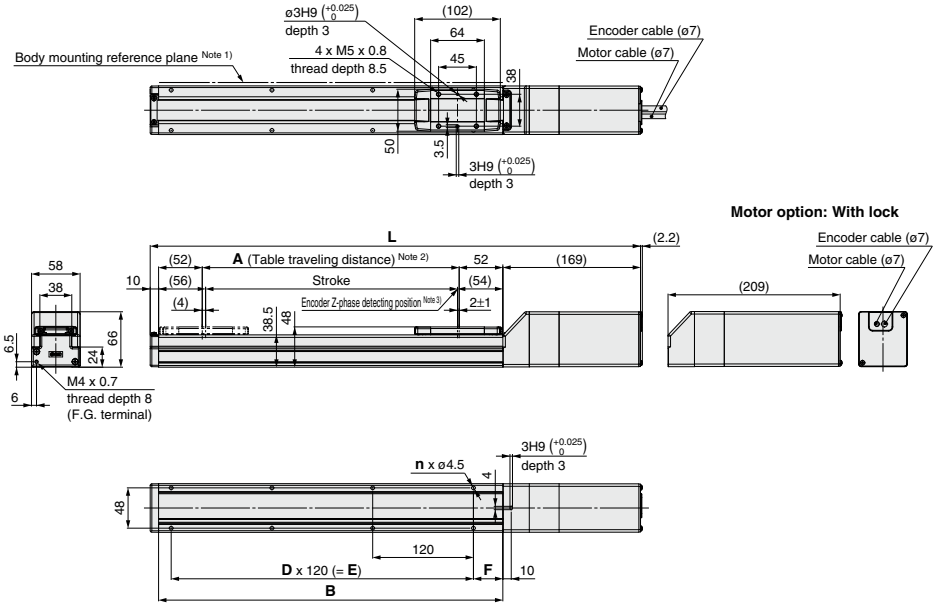
Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Rail guide**	—	
3	**Ball screw shaft**	—	
4	**Ball screw nut**	—	
5	**Table**	Aluminum alloy	Anodized
6	**Blanking plate**	Aluminum alloy	Anodized
7	**Seal band holder**	Synthetic resin	
8	**Housing A**	Aluminum die-cast	Coating
9	**Housing B**	Aluminum die-cast	Coating
10	**Bearing stopper**	Aluminum alloy	

No.	Description	Material	Note
11	**Motor mount**	Aluminum alloy	Coating
12	**Coupling**	—	
13	**Motor cover**	Aluminum alloy	Anodized
14	**Motor end cover**	Aluminum alloy	Anodized
15	**Motor**	—	
16	**Grommet**	NBR	
17	**Band stopper**	Stainless steel	
18	**Dust seal band**	Stainless steel	
19	**Bearing**	—	
20	**Bearing**	—	

Dimensions: In-line Motor

LEFS25



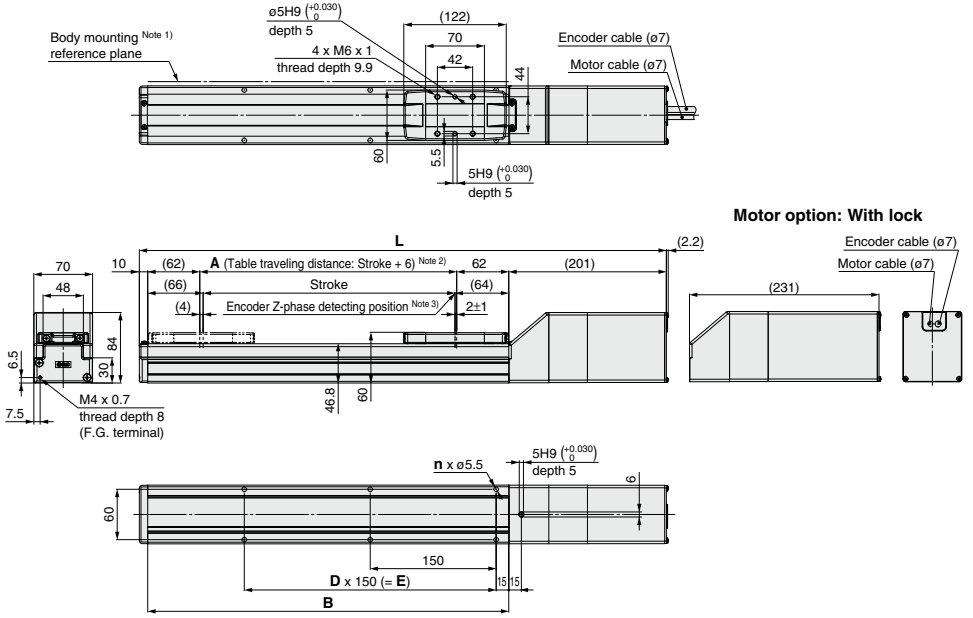
Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of round chamfering. (Recommended height 5 mm)
Note 2) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.
Note 3) The Z-phase first detecting position from the stroke end of the motor side.

Dimensions [mm]

Model	L		A	B	n	D	E	F
	Without lock	With lock						
LEFS25□□-50□	339	379	56	160	4	—	—	20
LEFS25□□-100□	389	429	106	210	4	—	—	
LEFS25□□-150□	439	479	156	260	4	—	—	
LEFS25□□-200□	489	529	206	310	6	2	240	
LEFS25□□-250□	539	579	256	360	6	2	240	
LEFS25□□-300□	589	629	306	410	8	3	360	
LEFS25□□-350□	639	679	356	460	8	3	360	
LEFS25□□-400□	689	729	406	510	8	3	360	
LEFS25□□-450□	739	779	456	560	10	4	480	35
LEFS25□□-500□	789	829	506	610	10	4	480	
LEFS25□□-550□	839	879	556	660	12	5	600	
LEFS25□□-600□	889	929	606	710	12	5	600	
LEFS25□□-650□	939	979	656	760	12	5	600	
LEFS25□□-700□	989	1029	706	810	14	6	720	
LEFS25□□-750□	1039	1079	756	860	14	6	720	
LEFS25□□-800□	1089	1129	806	910	16	7	840	

Dimensions: In-line Motor

LEFS32



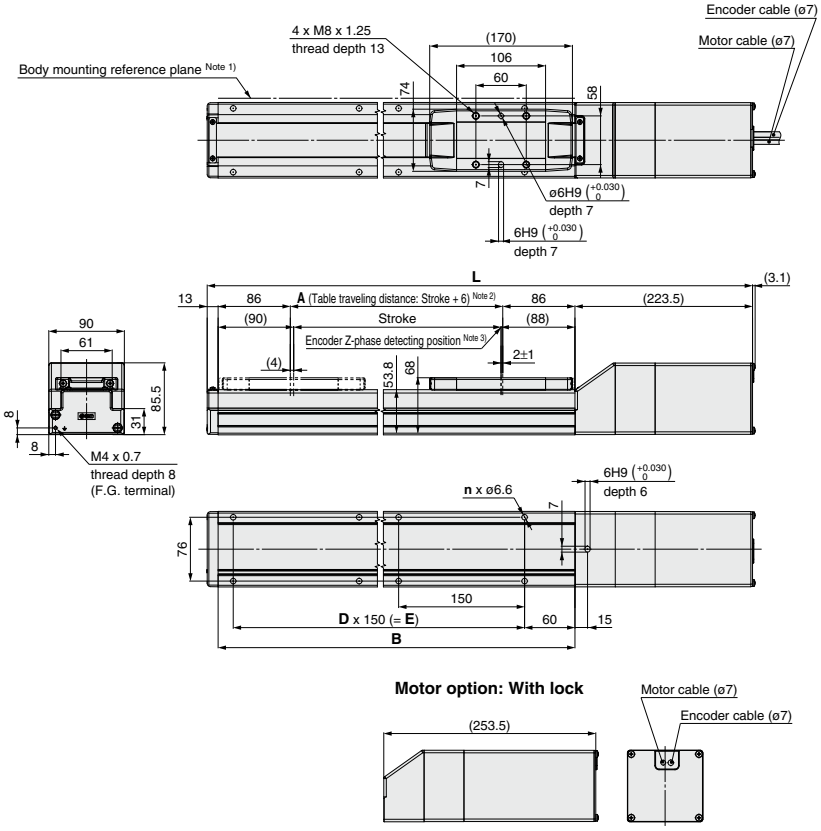
Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of round chamfering. (Recommended height 5 mm)
Note 2) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.
Note 3) The Z-phase first detecting position from the stroke end of the motor side.

Dimensions [mm]

Model	L		A	B	n	D	E
	Without lock	With lock					
LEFS32□□-50□	391	421	56	180	4	—	—
LEFS32□□-100□	441	471	106	230	4	—	—
LEFS32□□-150□	491	521	156	280	4	—	—
LEFS32□□-200□	541	571	206	330	6	2	300
LEFS32□□-250□	591	621	256	380	6	2	300
LEFS32□□-300□	641	671	306	430	6	2	300
LEFS32□□-350□	691	721	356	480	8	3	450
LEFS32□□-400□	741	771	406	530	8	3	450
LEFS32□□-450□	791	821	456	580	8	3	450
LEFS32□□-500□	841	871	506	630	10	4	600
LEFS32□□-550□	891	921	556	680	10	4	600
LEFS32□□-600□	941	971	606	730	10	4	600
LEFS32□□-650□	991	1021	656	780	12	5	750
LEFS32□□-700□	1041	1071	706	830	12	5	750
LEFS32□□-750□	1091	1121	756	880	12	5	750
LEFS32□□-800□	1141	1171	806	930	14	6	900
LEFS32□□-850□	1191	1221	856	980	14	6	900
LEFS32□□-900□	1241	1271	906	1030	14	6	900
LEFS32□□-950□	1291	1321	956	1080	16	7	1050
LEFS32□□-1000□	1341	1371	1006	1130	16	7	1050

Dimensions: In-line Motor

LEFS40



Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of round chamfering. (Recommended height 5 mm)

Note 2) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.

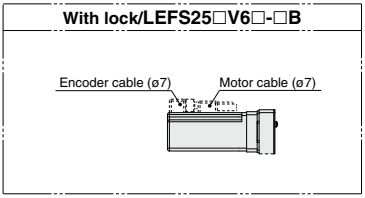
Note 3) The Z-phase first detecting position from the stroke end of the motor side.

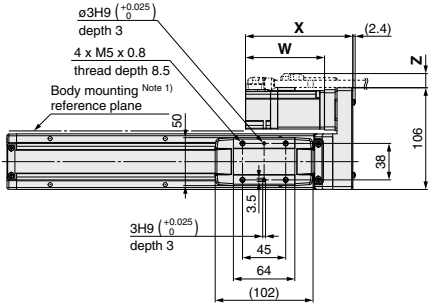
Dimensions [mm]

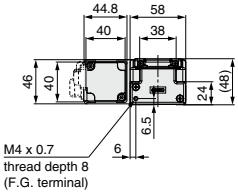
Model	L		A	B	n	D	E
	Without lock	With lock					
LEFS40□□-150□	564.5	594.5	156	328	4	—	150
LEFS40□□-200□	614.5	644.5	206	378	6	2	300
LEFS40□□-250□	664.5	694.5	256	428	6	2	300
LEFS40□□-300□	714.5	744.5	306	478	6	2	300
LEFS40□□-350□	764.5	794.5	356	528	8	3	450
LEFS40□□-400□	814.5	844.5	406	578	8	3	450
LEFS40□□-450□	864.5	894.5	456	628	8	3	450
LEFS40□□-500□	914.5	944.5	506	678	10	4	600
LEFS40□□-550□	964.5	994.5	556	728	10	4	600
LEFS40□□-600□	1014.5	1044.5	606	778	10	4	600
LEFS40□□-650□	1064.5	1094.5	656	828	12	5	750
LEFS40□□-700□	1114.5	1144.5	706	878	12	5	750
LEFS40□□-750□	1164.5	1194.5	756	928	12	5	750
LEFS40□□-800□	1214.5	1144.5	806	978	14	6	900
LEFS40□□-850□	1264.5	1294.5	856	1028	14	6	900
LEFS40□□-900□	1314.5	1344.5	906	1078	14	6	900
LEFS40□□-950□	1364.5	1394.5	956	1128	16	7	1050
LEFS40□□-1000□	1414.5	1444.5	1006	1178	16	7	1050
LEFS40□□-1100□	1514.5	1544.5	1106	1278	18	8	1200
LEFS40□□-1200□	1614.5	1644.5	1206	1378	18	8	1200

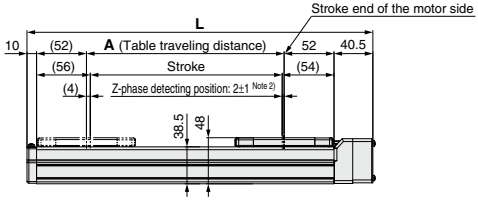
Dimensions: Motor Parallel

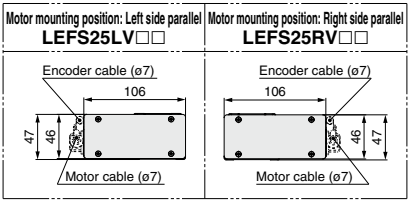
LEFS25R

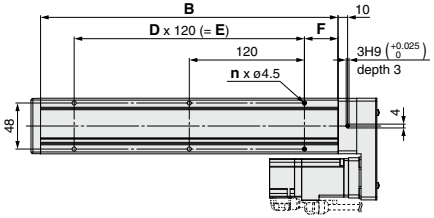












Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more. (Recommended height 5 mm)

Note 2) The Z-phase first detecting position from the stroke end of the motor side. Please consult with SMC for adjusting the Z-phase detecting position at the stroke end of the end side.

Motor Dimensions [mm]

Motor type	X		W		Z	
	Without lock	With lock	Without lock	With lock	Without lock	With lock
V6	112	157	82.5	127.5	11	

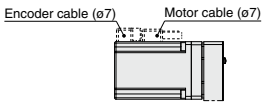
Dimensions [mm]

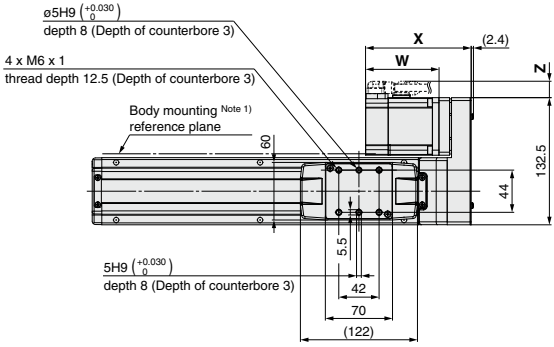
Model	L	A	B	n	D	E	F
LEFS25□□□-50□	210.5	56	160	4	—	—	20
LEFS25□□□-100□	260.5	106	210	4	—	—	
LEFS25□□□-150□	310.5	156	260	4	—	—	
LEFS25□□□-200□	360.5	206	310	6	2	240	
LEFS25□□□-250□	410.5	256	360	6	2	240	
LEFS25□□□-300□	460.5	306	410	8	3	360	
LEFS25□□□-350□	510.5	356	460	8	3	360	
LEFS25□□□-400□	560.5	406	510	8	3	360	
LEFS25□□□-450□	610.5	456	560	10	4	480	35
LEFS25□□□-500□	660.5	506	610	10	4	480	
LEFS25□□□-550□	710.5	556	660	12	5	600	
LEFS25□□□-600□	760.5	606	710	12	5	600	
LEFS25□□□-650□	810.5	656	760	12	5	600	
LEFS25□□□-700□	860.5	706	810	14	6	720	
LEFS25□□□-750□	910.5	756	860	14	6	720	
LEFS25□□□-800□	960.5	806	910	16	7	840	

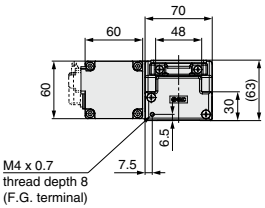
Dimensions: Motor Parallel

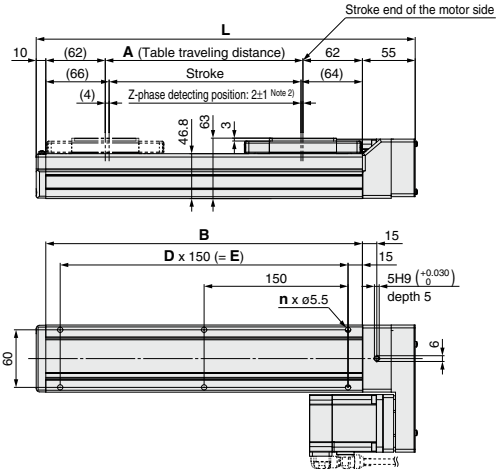
LEFS32R

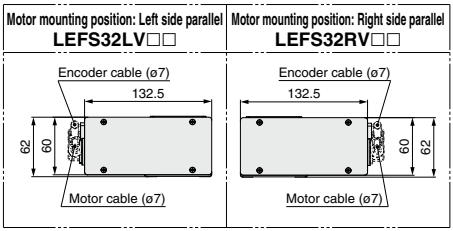
With lock/LEFS32□V7□-□B











Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more. (Recommended height 5 mm)

Note 2) The Z-phase first detecting position from the stroke end of the motor side. Please consult with SMC for adjusting the Z-phase detecting position at the stroke end of the end side.

Motor Dimensions [mm]

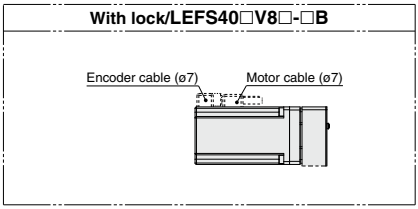
Motor type	X		W		Z	
	Without lock	With lock	Without lock	With lock	Without lock	With lock
V7	113.5	153.5	80	120	14	14

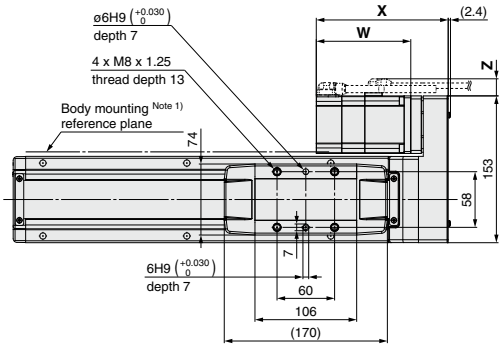
Dimensions [mm]

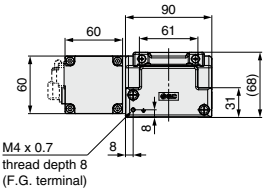
Model	L	A	B	n	D	E
LEFS32□□□-50□	245	56	180	4	—	—
LEFS32□□□-100□	295	106	230	4	—	—
LEFS32□□□-150□	345	156	280	4	—	—
LEFS32□□□-200□	395	206	330	6	2	300
LEFS32□□□-250□	445	256	380	6	2	300
LEFS32□□□-300□	495	306	430	6	2	300
LEFS32□□□-350□	545	356	480	8	3	450
LEFS32□□□-400□	595	406	530	8	3	450
LEFS32□□□-450□	645	456	580	8	3	450
LEFS32□□□-500□	695	506	630	10	4	600
LEFS32□□□-550□	745	556	680	10	4	600
LEFS32□□□-600□	795	606	730	10	4	600
LEFS32□□□-650□	845	656	780	12	5	750
LEFS32□□□-700□	895	706	830	12	5	750
LEFS32□□□-750□	945	756	880	12	5	750
LEFS32□□□-800□	995	806	930	14	6	900
LEFS32□□□-850□	1045	856	980	14	6	900
LEFS32□□□-900□	1095	906	1030	14	6	900
LEFS32□□□-950□	1145	956	1080	16	7	1050
LEFS32□□□-1000□	1195	1006	1130	16	7	1050

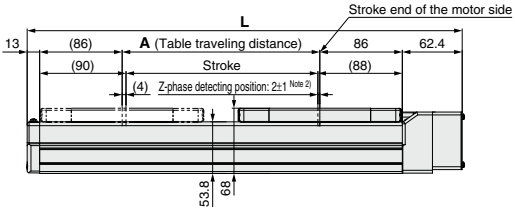
Dimensions: Motor Parallel

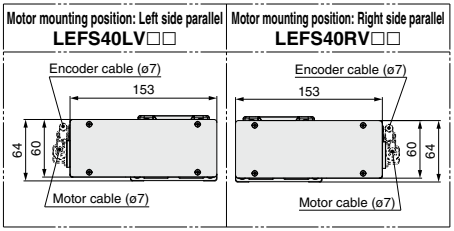
LEFS40R

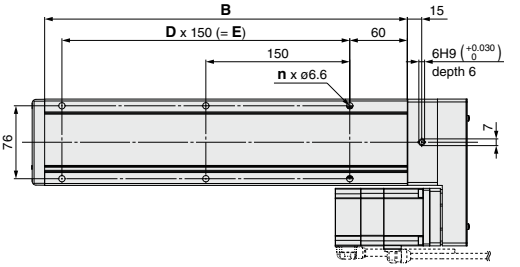












Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more. (Recommended height 5 mm)

Note 2) The Z-phase first detecting position from the stroke end of the motor side. Please consult with SMC for adjusting the Z-phase detecting position at the stroke end of the end side.

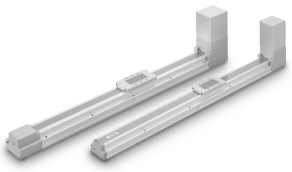
Motor Dimensions [mm]

Motor type	X		W		Z	
	Without lock	With lock	Without lock	With lock	Without lock	With lock
V8	137.5	177.5	98.5	138.5	14	14

Dimensions [mm]

Model	L	A	B	n	D	E
LEFS40□□□-150□	403.4	156	328	4	—	150
LEFS40□□□-200□	453.4	206	378	6	2	300
LEFS40□□□-250□	503.4	256	428	6	2	300
LEFS40□□□-300□	553.4	306	478	6	2	300
LEFS40□□□-350□	603.4	356	528	8	3	450
LEFS40□□□-400□	653.4	406	578	8	3	450
LEFS40□□□-450□	703.4	456	628	8	3	450
LEFS40□□□-500□	753.4	506	678	10	4	600
LEFS40□□□-550□	803.4	556	728	10	4	600
LEFS40□□□-600□	853.4	606	778	10	4	600
LEFS40□□□-650□	903.4	656	828	12	5	750
LEFS40□□□-700□	953.4	706	878	12	5	750
LEFS40□□□-750□	1003.4	756	928	12	5	750
LEFS40□□□-800□	1053.4	806	978	14	6	900
LEFS40□□□-850□	1103.4	856	1028	14	6	900
LEFS40□□□-900□	1153.4	906	1078	14	6	900
LEFS40□□□-950□	1203.4	956	1128	16	7	1050
LEFS40□□□-1000□	1253.4	1006	1178	16	7	1050
LEFS40□□□-1100□	1353.4	1106	1278	18	8	1200
LEFS40□□□-1200□	1453.4	1206	1378	18	8	1200

Model Selection



LEFB Series ▶ Page 688

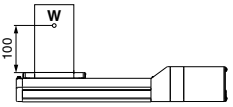
Selection Procedure

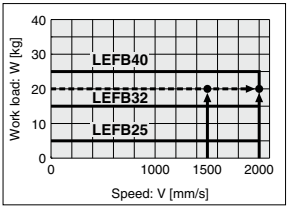
Step 1 Check the work load–speed. → **Step 2** Check the cycle time. → **Step 3** Check the allowable moment.

Selection Example

Operating conditions

- Workpiece mass: 20 [kg]
- Speed: 1500 [mm/s]
- Acceleration/Deceleration: 3000 [mm/s^2]
- Stroke: 2000 [mm]
- Mounting position: Horizontal upward
- Workpiece mounting condition:





<Speed–Work load graph> (LEFB40)

Step 1 **Check the work load–speed. <Speed–Work load graph>** (Page 683)

Select the target model based on the workpiece mass and speed with reference to the <Speed–Work load graph>.

Selection example) The **LEFB40V8S-2000** is temporarily selected based on the graph shown on the right side.

Step 2 **Check the cycle time.**

Calculate the cycle time using the following calculation method.

Cycle time:

T can be found from the following equation.

$$T = T1 + T2 + T3 + T4 \text{ [s]}$$

- T1: Acceleration time and T3: Deceleration time can be obtained by the following equation.

$$T1 = V/a1 \text{ [s]} \qquad T3 = V/a2 \text{ [s]}$$

- T2: Constant speed time can be found from the following equation.

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} \text{ [s]}$$

- T4: Settling time varies depending on the motor type and load. The value below is recommended.

$$T4 = 0.05 \text{ [s]}$$

Calculation example)
T1 to T4 can be calculated as follows.

$T1 = V/a1 = 1500/3000 = 0.5$ [s],

$T3 = V/a2 = 1500/3000 = 0.5$ [s]

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{2000 - 0.5 \cdot 1500 \cdot (0.5 + 0.5)}{1500} = 0.83 \text{ [s]}$$

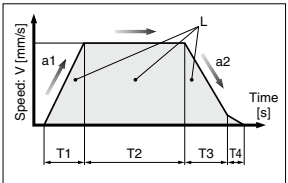
$T4 = 0.05$ [s]

Therefore, the cycle time can be obtained as follows.

$T = T1 + T2 + T3 + T4$

$= 0.5 + 0.83 + 0.5 + 0.05$

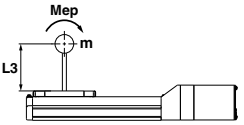
$=$ **1.88 [s]**

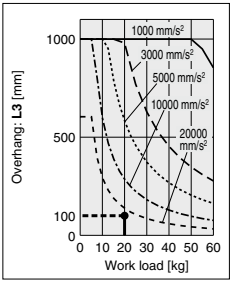


L : Stroke [mm]
··· (Operating condition)
V : Speed [mm/s]
··· (Operating condition)
a1: Acceleration [mm/s^2]
··· (Operating condition)
a2: Deceleration [mm/s^2]
··· (Operating condition)

T1: Acceleration time [s]
Time until reaching the set speed
T2: Constant speed time [s]
Time while the actuator is operating at a constant speed
T3: Deceleration time [s]
Time from the beginning of the constant speed operation to stop
T4: Settling time [s]
Time until positioning is completed

Step 3 **Check the guide moment.**



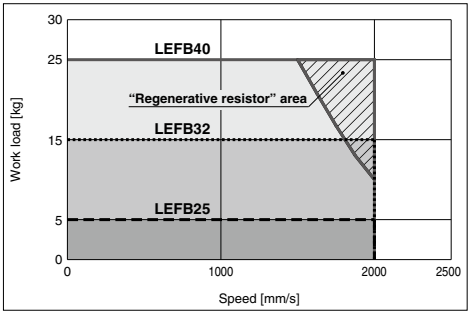


Based on the above calculation result, the LEFB40V8S-2000 is selected.

SMC

Speed–Work Load Graph (Guide)

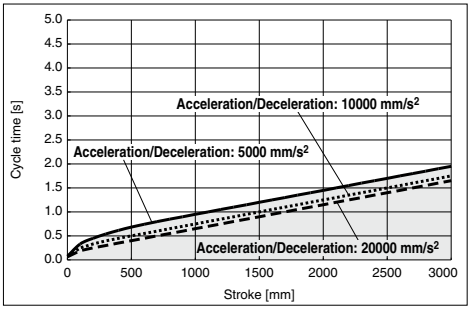
LEFB□/Belt Drive



Cycle Time Graph (Guide)

LEFB□/Belt Drive

LEFB25/32/40



∗ Cycle time is for when maximum speed.
∗ Maximum stroke: LEFB25: 2000 mm
LEFB32: 2500 mm
LEFB40: 3000 mm

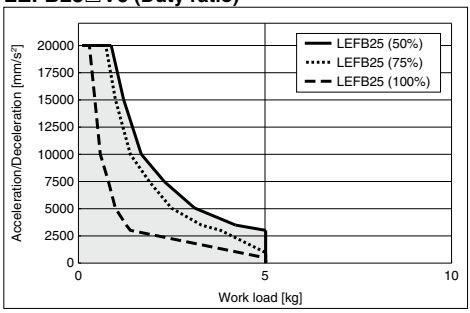
"Regenerative resistor" area

∗ When using the actuator in the "Regenerative resistor" area, download the "AC servo capacity selection program/SigmaJunmaSize+" from the SMC website. Then, calculate the necessary regenerative resistor capacity to prepare an appropriate external regenerative resistor.
∗ Regenerative resistor should be provided by the customer.

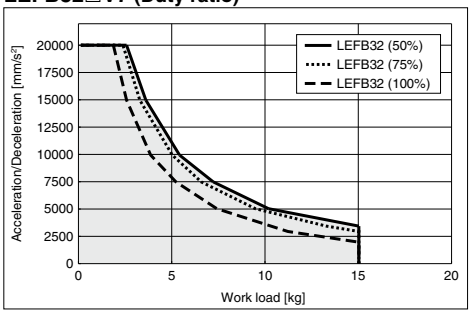
Work Load–Acceleration/Deceleration Graph (Guide)

LEFB□/Belt Drive

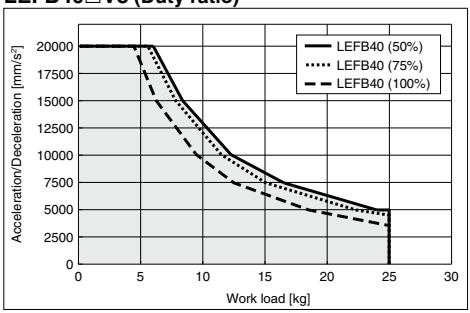
LEFB25□V6 (Duty ratio)



LEFB32□V7 (Duty ratio)



LEFB40□V8 (Duty ratio)



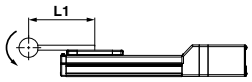
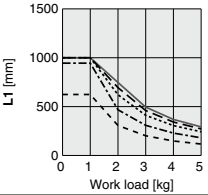
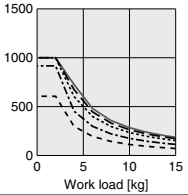
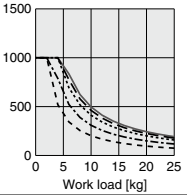
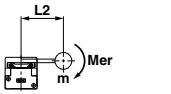
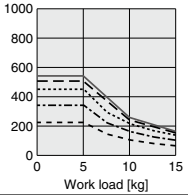
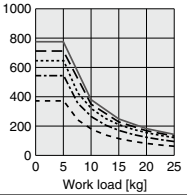
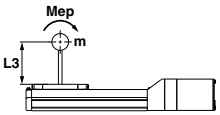
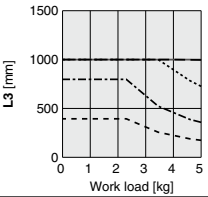
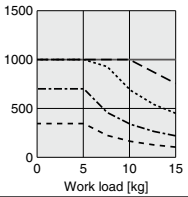
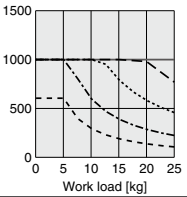
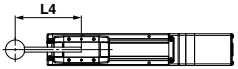
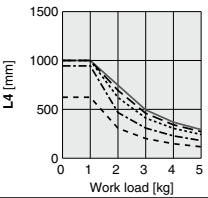
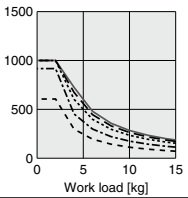
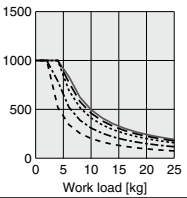
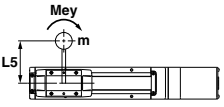
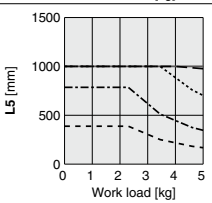
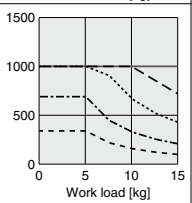
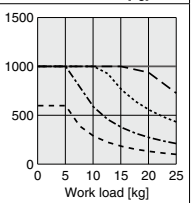
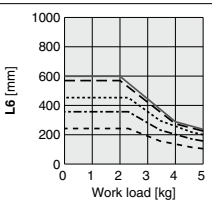
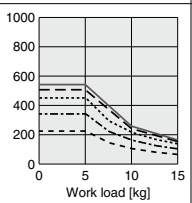
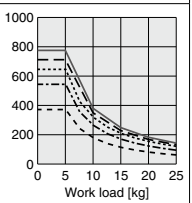
Applicable Motor/Driver

Model	Applicable model	
	Motor	Servopack (SMC driver)
LEFB25□	SGMJV-01A3A	SGDV-R90A11□ (LECYM2-V5) SGDV-R90A21□ (LECYU2-V5)
LEFB32□	SGMJV-02A3A	SGDV-1R6A11□ (LECYM2-V7) SGDV-1R6A21□ (LECYU2-V7)
LEFB40□	SGMJV-04A3A	SGDV-2R8A11□ (LECYM2-V8) SGDV-2R8A21□ (LECYU2-V8)

Dynamic Allowable Moment

∗ This graph shows the amount of allowable overhang (guide unit) when the center of gravity of the workpiece overhangs in one direction. When selecting the overhang, refer to "Calculation of Guide Load Factor" or the Electric Actuator Selection Software for confirmation, http://www.smcworld.com

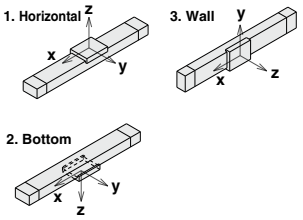
Acceleration/Deceleration ——1000 mm/s² – – –3000 mm/s² ·····5000 mm/s² –·–·–10000 mm/s² - - - -20000 mm/s²

Orientation	Load overhanging direction **m** : Work load [kg] **Me**: Dynamic allowable moment [N·m] **L** : Overhang to the work load center of gravity [mm]		Model LEFB25□V6	Model LEFB32□V7	Model LEFB40□V8
Horizontal/Bottom		X			
		Y			
		Z			
Wall		X			
		Y			
		Z			

Calculation of Guide Load Factor

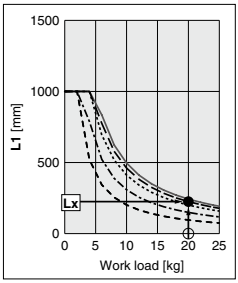
1. Decide operating conditions.
   Model: LEFB
   Size: 25/32/40
   Mounting orientation: Horizontal/Bottom/Wall
   Acceleration [mm/s²]: **a**
   Work load [kg]: **m**
   Work load center position [mm]: **Xc/Yc/Zc**
2. Select the target graph with reference to the model, size and mounting orientation.
3. Based on the acceleration and work load, obtain the overhang [mm]: **Lx/Ly/Lz** from the graph.
4. Calculate the load factor for each direction.
   α**x = Xc/Lx**, α**y = Yc/Ly**, α**z = Zc/Lz**
5. Confirm the total of α**x**, α**y** and α**z** is 1 or less.
   α**x + αy + αz ≤ 1**
   When 1 is exceeded, please consider a reduction of acceleration and work load, or a change of the work load center position and series.

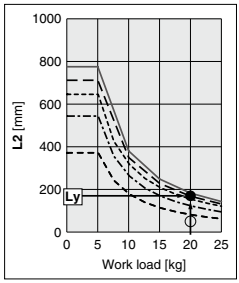
Mounting orientation



Example

1. Operating conditions
   Model: LEFB40
   Size: 40
   Mounting orientation: Horizontal
   Acceleration [mm/s²]: 3000
   Work load [kg]: 20
   Work load center position [mm]: **Xc = 0**, **Yc = 50**, **Zc = 200**
2. Select the graphs for horizontal of the LEFB40 on page 684.
3. **Lx = 250 mm**, **Ly = 180 mm**, **Lz = 1000 mm**
4. The load factor for each direction can be obtained as follows.
   α**x = 0/250 = 0**
   α**y = 50/180 = 0.27**
   α**z = 200/1000 = 0.2**
5. α**x + αy + αz = 0.47** ≤ **1**





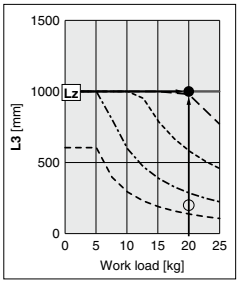
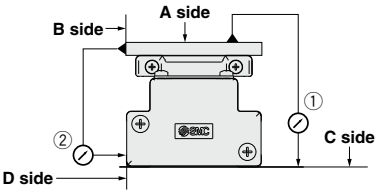


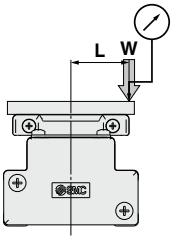
Table Accuracy (Reference Value)

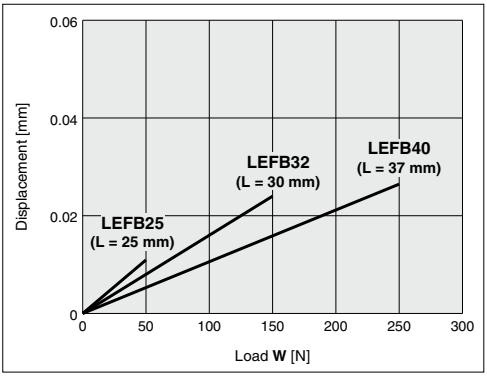


Model	Traveling parallelism [mm] (Every 300 mm)	
	① C side traveling parallelism to A side	② D side traveling parallelism to B side
LEFB25	0.05	0.03
LEFB32	0.05	0.03
LEFB40	0.05	0.03

Note) Traveling parallelism does not include the mounting surface accuracy.

Table Displacement (Reference Value)

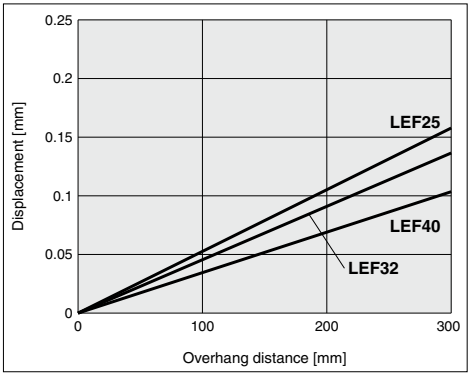




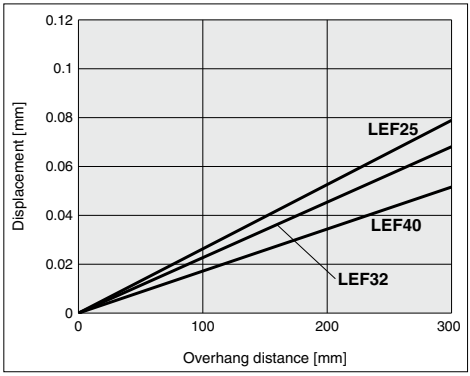
Note 1) This displacement is measured when a 15 mm aluminum plate is mounted and fixed on the table.
Note 2) Check the clearance and play of the guide separately.

Overhang Displacement Due to Table Clearance (Reference Value)

Basic type



High precision type



Electric Actuator/Slider Type Belt Drive

LEFB Series LEFB25, 32, 40

CE RoHS

How to Order

LEFB 32 [ ] V7 S – 300 B – S 3 M2 [ ]

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

❶ Size

25
32
40

❷ Motor mounting position

Nil	Top mounting
U	Bottom mounting

❸ Motor type

Symbol	Type	Output [W]	Size	Compatible driver
V6	AC servo motor (Absolute encoder)	100	25	LECYM2-V5/LECYU2-V5
V7		200	32	LECYM2-V7/LECYU2-V7
V8		400	40	LECYM2-V8/LECYU2-V8

❹ Equivalent lead [mm]

S	54

❺ Stroke [mm]

300	300
to	to
3000	3000

❻ Motor option

Nil	Without option
B	With lock

❼ Cable type

Nil	Without cable
S	Standard cable
R	Robotic cable (Flexible cable)

❽ Actuator cable length [m]

Nil	Without cable
3	3
5	5
A	10
C	20

❾ Driver type

	Compatible driver	Power supply voltage [V]
Nil	Without driver	—
M2	LECYM2-V□	200 to 230
U2	LECYU2-V□	200 to 230

❿ I/O cable length [m] *

Nil	Without cable
H	Without cable (Connector only)
1	1.5

* When "Without driver" is selected for driver type, only "Nil: Without cable" can be selected. Refer to page 773 if I/O cable is required. (Options are shown on page 773.)

Applicable Stroke Table

●: Standard/○: Produced upon receipt of order

	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2500	3000	Manufacturable stroke range [mm]
LEFB25	●	●	●	●	●	●	●	●	○	●	○	○	●	○	○	○	○	●	—	—	300 to 2000
LEFB32	●	●	●	●	●	●	●	●	○	●	○	○	●	○	○	○	○	●	●	—	300 to 2500
LEFB40	●	●	●	●	●	●	●	●	○	●	○	○	●	○	○	○	○	●	●	●	300 to 3000

* Please consult with SMC as all non-standard and non-made-to-order strokes are produced as special orders.

Compatible Driver

Driver type	MECHATROLINK-Ⅱ type	MECHATROLINK-Ⅲ type
		
Series	LECYM	LECYU
Applicable network	MECHATROLINK-Ⅱ	MECHATROLINK-Ⅲ
Control encoder	Absolute 20-bit encoder	
Communication device	USB communication, RS-422 communication	
Power supply voltage [V]	200 to 230 VAC (50/60 Hz)	
Reference page	Page 766	

SMC

Specifications

AC Servo Motor

	Model		LEFB25V6	LEFB32V7	LEFB40V8
Actuator specifications	**Stroke [mm]** Note 1)		300, 400, 500 600, 700, 800 900, 1000, (1100) 1200, (1300, 1400) 1500, (1600, 1700) (1800, 1900), 2000	300, 400, 500 600, 700, 800 900, 1000, (1100) 1200, (1300, 1400) 1500, (1600, 1700) (1800, 1900), 2000 2500	300, 400, 500 600, 700, 800 900, 1000, (1100) 1200, (1300, 1400) 1500, (1600, 1700) (1800, 1900), 2000 2500, 3000
	Work load [kg] Note 2)	**Horizontal**	5	15	25
	Max. speed [mm/s]		2000	2000	2000
	Max. acceleration/deceleration [mm/s²]		20000 (Refer to page 683 for limit according to work load and duty ratio.) Note 3)		
	Positioning repeatability [mm]		±0.06		
	Lost motion [mm] Note 4)		0.1 or less		
	Equivalent lead [mm]		54		
	Impact/Vibration resistance [m/s²] Note 5)		50/20		
	Actuation type		Belt		
	Guide type		Linear guide		
	Operating temperature range [°C]		5 to 40		
	Operating humidity range [%RH]		90 or less (No condensation)		
Electric specifications	**Motor output/Size**		100 W/□40	200 W/□60	400 W/□60
	Motor type		AC servo motor (200 VAC)		
	Encoder		Absolute 20-bit encoder (Resolution: 1048576 p/rev)		
	Power consumption [W] Note 6)	**Horizontal**	29	41	72
		Vertical	—	—	—
	Standby power consumption when operating [W] Note 7)	**Horizontal**	2	2	2
		Vertical	—	—	—
	Max. instantaneous power consumption [W] Note 8)		445	725	1275
Lock unit specifications	**Type** Note 9)		Non-magnetizing lock		
	Holding force [N]		27	54	110
	Power consumption at 20°C [W] Note 10)		5.5	6.0	6.0
	Rated voltage [V]		24 VDC $^{0}_{-10\%}$		

Note 1) Please consult with SMC as all non-standard and non-made-to-order strokes are produced as special orders.
Note 2) For details, refer to "Speed–Work Load Graph (Guide)" on page 683.
Note 3) Maximum acceleration/deceleration changes according to the work load. Check "Work Load–Acceleration/Deceleration Graph (Guide)" of the catalog.
Note 4) A reference value for correcting an error in reciprocal operation.
Note 5) Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. Test was performed in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
Note 6) The power consumption (including the driver) is for when the actuator is operating.
Note 7) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.
Note 8) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.
Note 9) Only when motor option "With lock" is selected.
Note 10) For an actuator with lock, add the power consumption for the lock.

Weight

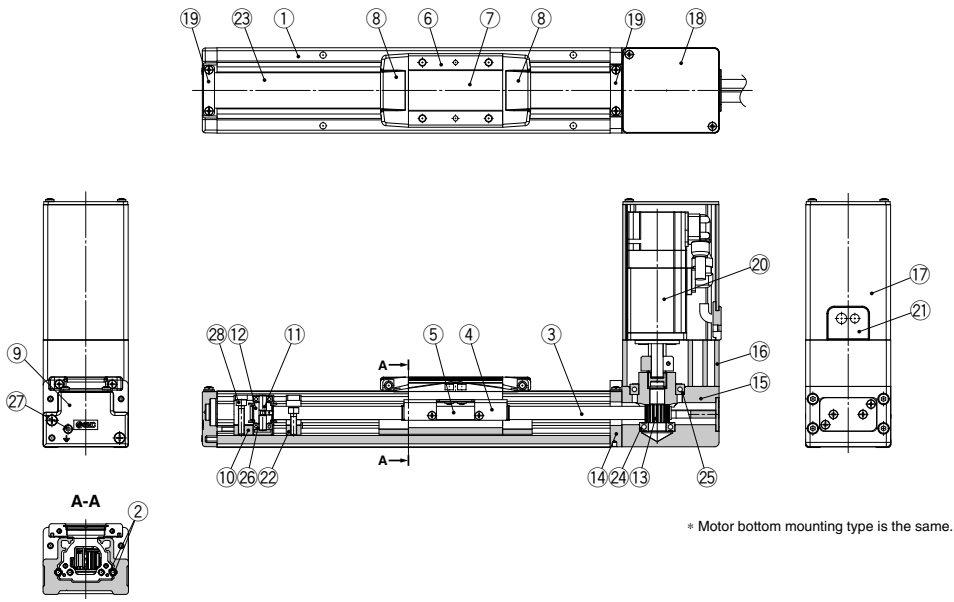
Series	LEFB25																	
Stroke [mm]	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
Product weight [kg]	3.06	3.31	3.56	3.81	4.06	4.31	4.56	4.81	5.06	5.31	5.56	5.81	6.06	6.31	6.56	6.81	7.06	7.31
Additional weight with lock [kg]	0.3																	

Series	LEFB32																		
Stroke [mm]	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2500
Product weight [kg]	4.90	5.25	5.60	5.95	6.30	6.65	7.00	7.35	7.70	8.05	8.40	8.75	9.10	9.45	9.80	10.15	10.50	10.85	12.60
Additional weight with lock [kg]	0.7																		

Series	LEFB40																			
Stroke [mm]	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2500	3000
Product weight [kg]	7.22	7.67	8.12	8.57	9.02	9.47	9.92	10.37	10.82	11.27	11.72	12.17	12.62	13.07	13.52	13.97	14.42	14.82	17.12	19.37
Additional weight with lock [kg]	0.7																			

Construction

LEFB25V6S



∗ Motor bottom mounting type is the same.

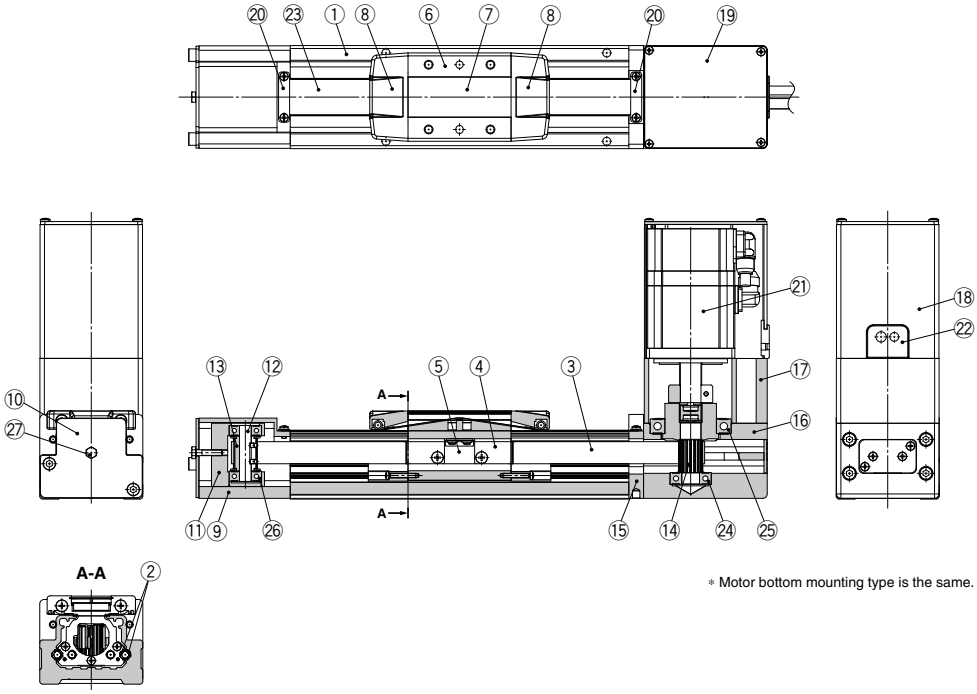
Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Rail guide**		
3	**Belt**		
4	**Belt holder**	Carbon steel	Chromating
5	**Belt stopper**	Aluminum alloy	Anodized
6	**Table**	Aluminum alloy	Anodized
7	**Blanking plate**	Aluminum alloy	Anodized
8	**Seal band holder**	Synthetic resin	
9	**Housing A**	Aluminum die-cast	Coating
10	**Pulley holder**	Aluminum alloy	
11	**Pulley shaft**	Stainless steel	
12	**End pulley**	Aluminum alloy	Anodized
13	**Motor pulley**	Aluminum alloy	Anodized
14	**Return flange**	Aluminum alloy	Coating

No.	Description	Material	Note
15	**Housing**	Aluminum alloy	Coating
16	**Motor mount**	Aluminum alloy	Coating
17	**Motor cover**	Aluminum alloy	Anodized
18	**Motor end cover**	Aluminum alloy	Anodized
19	**Band stopper**	Stainless steel	
20	**Motor**		
21	**Rubber bushing**	NBR	
22	**Stopper**	Aluminum alloy	
23	**Dust seal band**	Stainless steel	
24	**Bearing**		
25	**Bearing**		
26	**Spacer**	Aluminum alloy	
27	**Tension adjustment cap screw**	Chromium molybdenum steel	Chromating
28	**Pulley retaining screw**	Chromium molybdenum steel	Chromating

Construction

LEFB32/40V□S



∗ Motor bottom mounting type is the same.

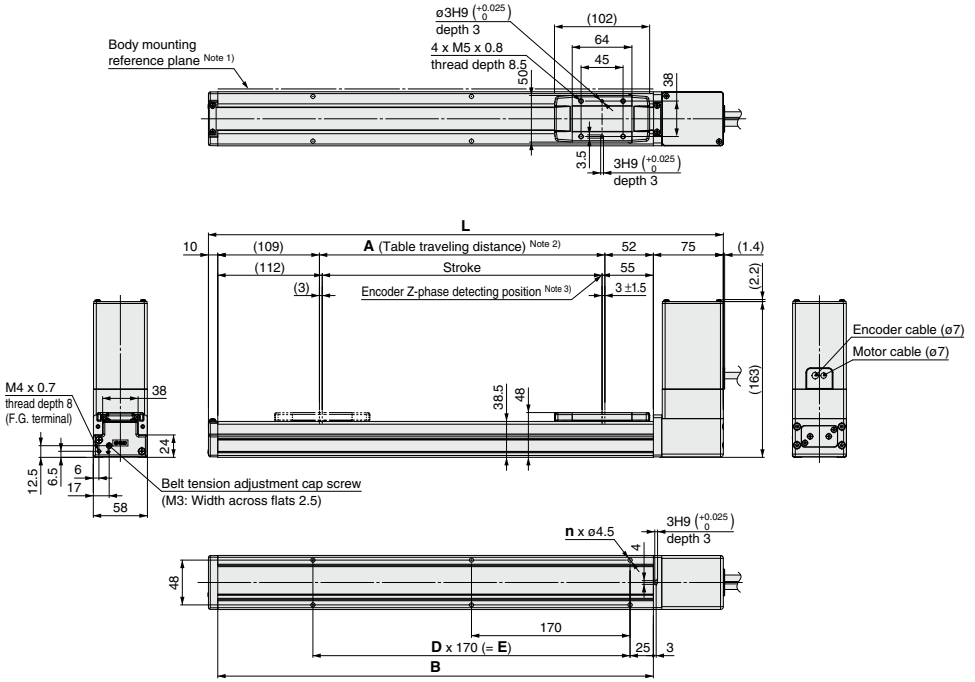
Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Rail guide**		
3	**Belt**		
4	**Belt holder**	Carbon steel	Chromating
5	**Belt stopper**	Aluminum alloy	Anodized
6	**Table**	Aluminum alloy	Anodized
7	**Blanking plate**	Aluminum alloy	Anodized
8	**Seal band stopper**	Synthetic resin	
9	**End block**	Aluminum alloy	Coating
10	**End block cover**		
11	**Pulley holder**	Aluminum alloy	
12	**Pulley shaft**	Stainless steel	
13	**End pulley**	Aluminum alloy	Anodized
14	**Motor pulley**	Aluminum alloy	Anodized

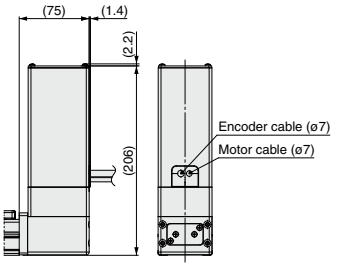
No.	Description	Material	Note
15	**Return flange**	Aluminum alloy	Coating
16	**Housing**	Aluminum alloy	Coating
17	**Motor mount**	Aluminum alloy	Coating
18	**Motor cover**	Aluminum alloy	Anodized
19	**Motor end cover**	Aluminum alloy	Anodized
20	**Band stopper**	Stainless steel	
21	**Motor**		
22	**Rubber bushing**	NBR	
23	**Dust seal band**	Stainless steel	
24	**Bearing**		
25	**Bearing**		
26	**Bearing**		
27	**Tension adjustment bolt**	Chromium molybdenum steel	Chromating

Dimensions: Belt Drive

LEFB25/Motor top mounting type



Motor option: With lock



Dimensions [mm]

Stroke	L	A	B	n	D	E
300	552	306	467	6	2	340
400	652	406	567	8	3	510
500	752	506	667	8	3	510
600	852	606	767	10	4	680
700	952	706	867	10	4	680
800	1052	806	967	12	5	850
900	1152	906	1067	14	6	1020
1000	1252	1006	1167	14	6	1020
1100	1352	1106	1267	16	7	1190
1200	1452	1206	1367	16	7	1190
1300	1552	1306	1467	18	8	1360
1400	1652	1406	1567	20	9	1530
1500	1752	1506	1667	20	9	1530
1600	1852	1606	1767	22	10	1700
1700	1952	1706	1867	22	10	1700
1800	2052	1806	1967	24	11	1870
1900	2152	1906	2067	24	11	1870
2000	2252	2006	2167	26	12	2040

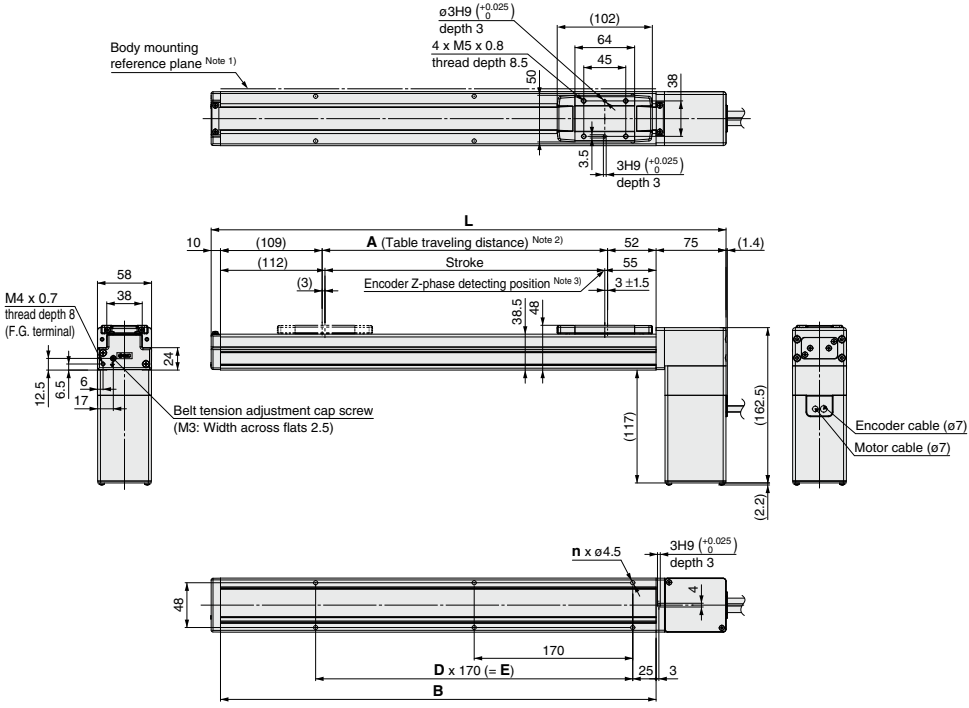
Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of round chamfering. (Recommended height 5 mm)

Note 2) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the work pieces and facilities around the table.

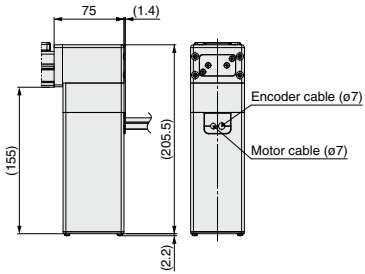
Note 3) The Z-phase first detecting position from the stroke end of the motor side

Dimensions: Belt Drive

LEFB25U/Motor bottom mounting type



Motor option: With lock



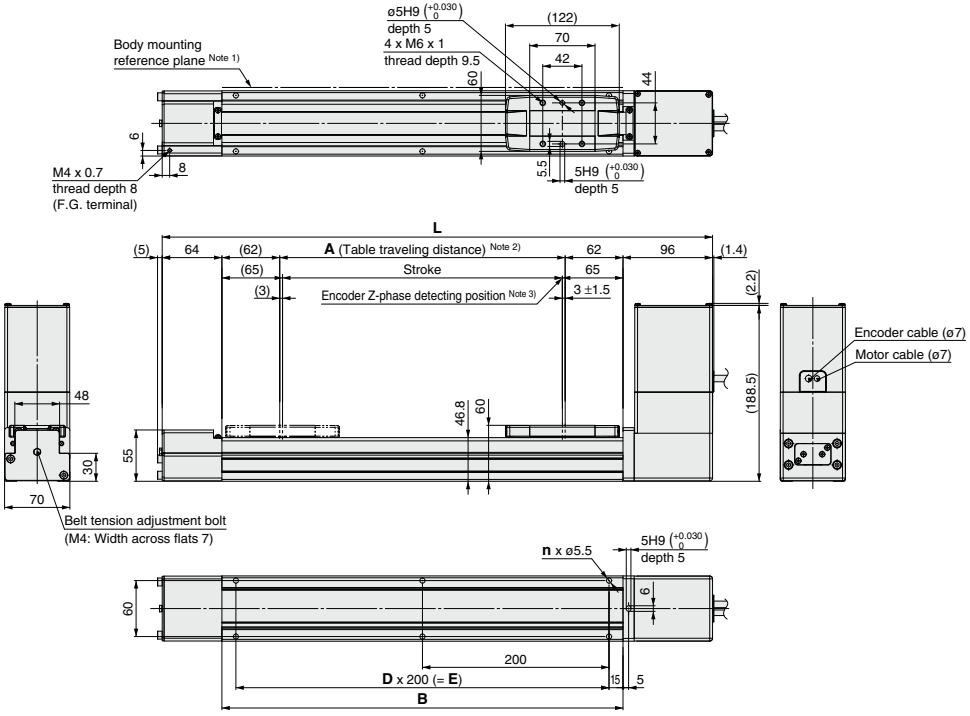
Dimensions [mm]

Stroke	L	A	B	n	D	E
300	552	306	467	6	2	340
400	652	406	567	8	3	510
500	752	506	667	8	3	510
600	852	606	767	10	4	680
700	952	706	867	10	4	680
800	1052	806	967	12	5	850
900	1152	906	1067	14	6	1020
1000	1252	1006	1167	14	6	1020
1100	1352	1106	1267	16	7	1190
1200	1452	1206	1367	16	7	1190
1300	1552	1306	1467	18	8	1360
1400	1652	1406	1567	20	9	1530
1500	1752	1506	1667	20	9	1530
1600	1852	1606	1767	22	10	1700
1700	1952	1706	1867	22	10	1700
1800	2052	1806	1967	24	11	1870
1900	2152	1906	2067	24	11	1870
2000	2252	2006	2167	26	12	2040

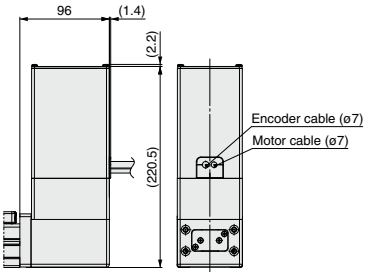
Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of round chamfering. (Recommended height 5 mm)
Note 2) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the work pieces and facilities around the table.
Note 3) The Z-phase first detecting position from the stroke end of the motor side

Dimensions: Belt Drive

LEFB32/Motor top mounting type



Motor option: With lock



Dimensions [mm]

Stroke	L	A	B	n	D	E
300	590	306	430	6	2	400
400	690	406	530	6	2	400
500	790	506	630	8	3	600
600	890	606	730	8	3	600
700	990	706	830	10	4	800
800	1090	806	930	10	4	800
900	1190	906	1030	12	5	1000
1000	1290	1006	1130	12	5	1000
1100	1390	1106	1230	14	6	1200
1200	1490	1206	1330	14	6	1200
1300	1590	1306	1430	16	7	1400
1400	1690	1406	1530	16	7	1400
1500	1790	1506	1630	18	8	1600
1600	1890	1606	1730	18	8	1600
1700	1990	1706	1830	20	9	1800
1800	2090	1806	1930	20	9	1800
1900	2190	1906	2030	22	10	2000
2000	2290	2006	2130	22	10	2000
2500	2790	2506	2630	28	13	2600

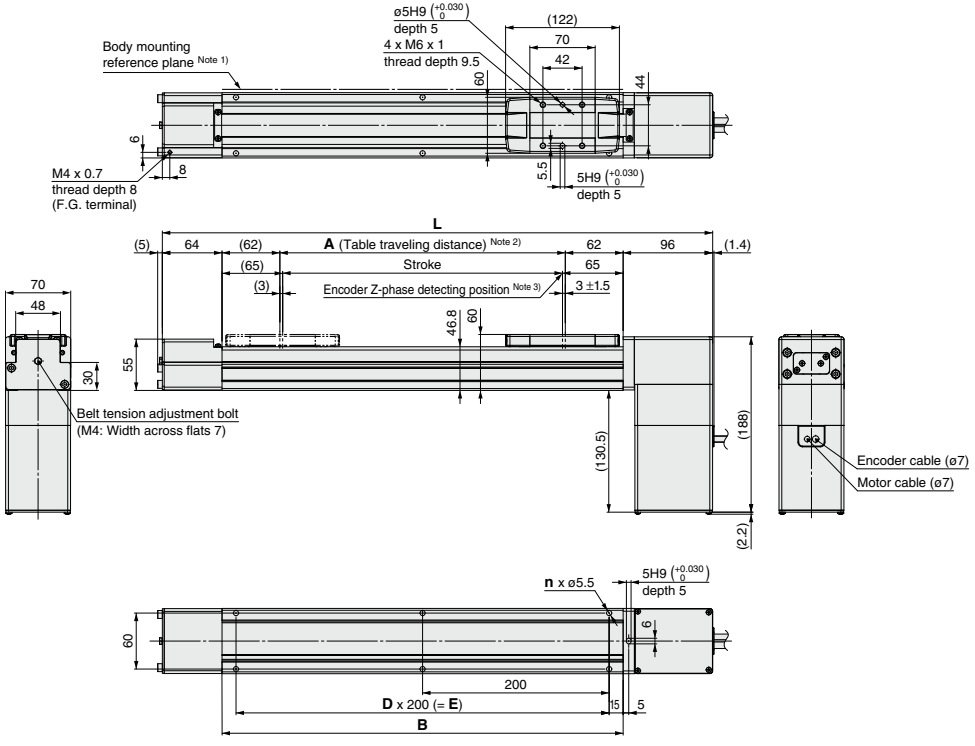
Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of round chamfering. (Recommended height 5 mm)

Note 2) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the work pieces and facilities around the table.

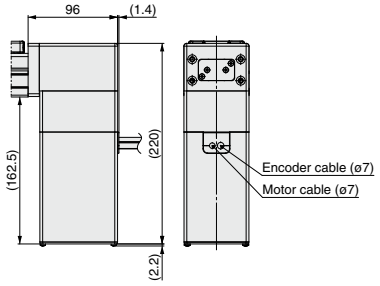
Note 3) The Z-phase first detecting position from the stroke end of the motor side

Dimensions: Belt Drive

LEFB32U/Motor bottom mounting type



Motor option: With lock



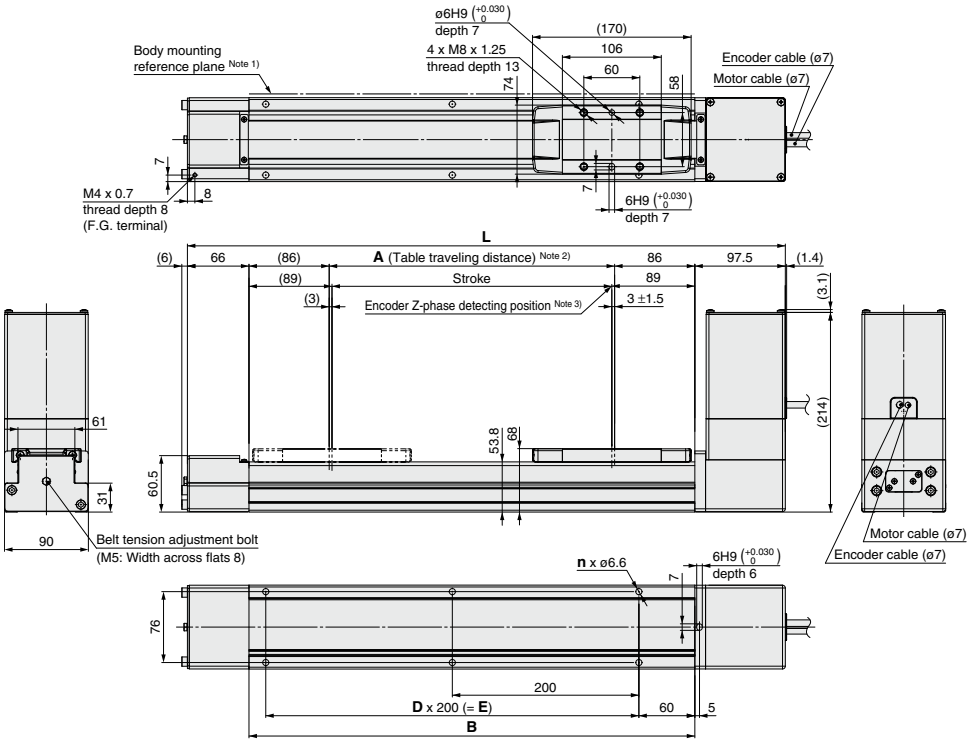
Dimensions [mm]

Stroke	L	A	B	n	D	E
300	590	306	430	6	2	400
400	690	406	530	6	2	400
500	790	506	630	8	3	600
600	890	606	730	8	3	600
700	990	706	830	10	4	800
800	1090	806	930	10	4	800
900	1190	906	1030	12	5	1000
1000	1290	1006	1130	12	5	1000
1100	1390	1106	1230	14	6	1200
1200	1490	1206	1330	14	6	1200
1300	1590	1306	1430	16	7	1400
1400	1690	1406	1530	16	7	1400
1500	1790	1506	1630	18	8	1600
1600	1890	1606	1730	18	8	1600
1700	1990	1706	1830	20	9	1800
1800	2090	1806	1930	20	9	1800
1900	2190	1906	2030	22	10	2000
2000	2290	2006	2130	22	10	2000
2500	2790	2506	2630	28	13	2600

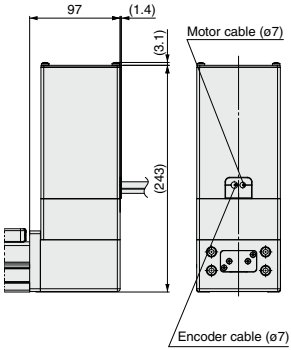
Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of round chamfering. (Recommended height 5 mm)
Note 2) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the work pieces and facilities around the table.
Note 3) The Z-phase first detecting position from the stroke end of the motor side

Dimensions: Belt Drive

LEFB40/Motor top mounting type



Motor option: With lock



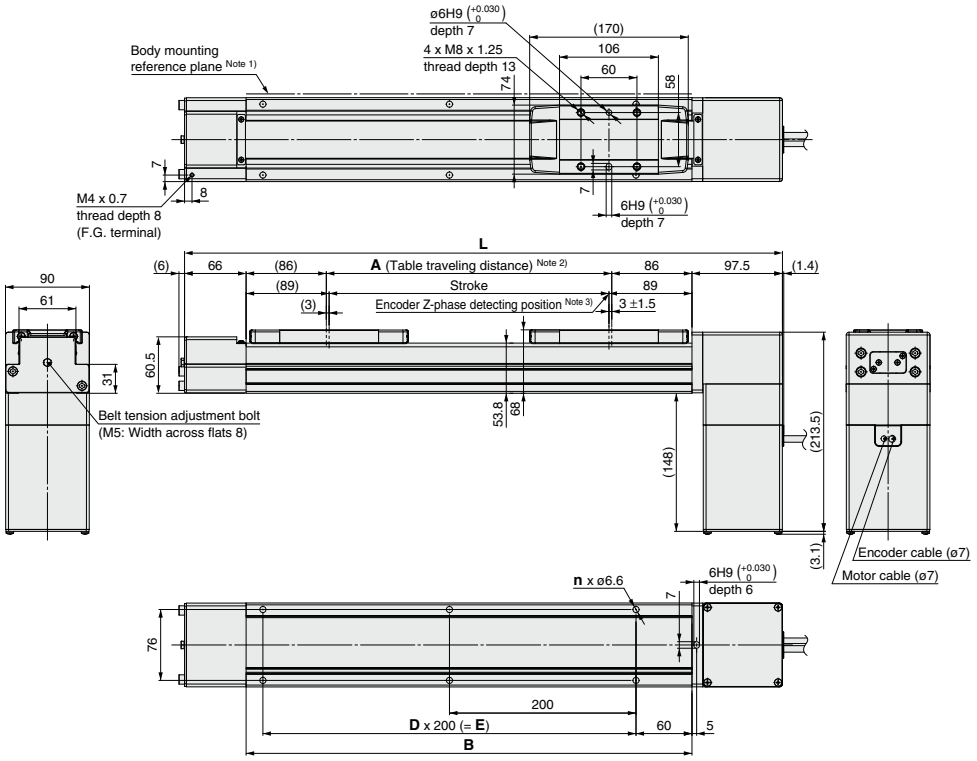
Dimensions [mm]

Stroke	L	A	B	n	D	E
300	641.5	306	478	6	2	400
400	741.5	406	578	6	2	400
500	841.5	506	678	8	3	600
600	941.5	606	778	8	3	600
700	1041.5	706	878	10	4	800
800	1141.5	806	978	10	4	800
900	1241.5	906	1078	12	5	1000
1000	1341.5	1006	1178	12	5	1000
1100	1441.5	1106	1278	14	6	1200
1200	1541.5	1206	1378	14	6	1200
1300	1641.5	1306	1478	16	7	1400
1400	1741.5	1406	1578	16	7	1400
1500	1841.5	1506	1678	18	8	1600
1600	1941.5	1606	1778	18	8	1600
1700	2041.5	1706	1878	20	9	1800
1800	2141.5	1806	1978	20	9	1800
1900	2241.5	1906	2078	22	10	2000
2000	2341.5	2006	2178	22	10	2000
2500	2841.5	2506	2678	28	13	2600
3000	3341.5	3006	3178	32	15	3000

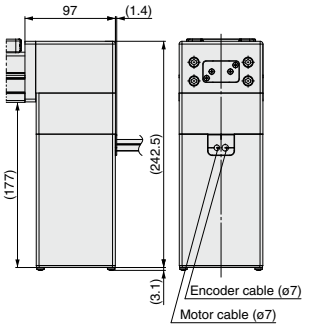
Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of round chamfering. (Recommended height 5 mm)
Note 2) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the work pieces and facilities around the table.
Note 3) The Z-phase first detecting position from the stroke end of the motor side

Dimensions: Belt Drive

LEFB40U/Motor bottom mounting type



Motor option: With lock



Dimensions [mm]

Stroke	L	A	B	n	D	E
300	641.5	306	478	6	2	400
400	741.5	406	578	6	2	400
500	841.5	506	678	8	3	600
600	941.5	606	778	8	3	600
700	1041.5	706	878	10	4	800
800	1141.5	806	978	10	4	800
900	1241.5	906	1078	12	5	1000
1000	1341.5	1006	1178	12	5	1000
1100	1441.5	1106	1278	14	6	1200
1200	1541.5	1206	1378	14	6	1200
1300	1641.5	1306	1478	16	7	1400
1400	1741.5	1406	1578	16	7	1400
1500	1841.5	1506	1678	18	8	1600
1600	1941.5	1606	1778	18	8	1600
1700	2041.5	1706	1878	20	9	1800
1800	2141.5	1806	1978	20	9	1800
1900	2241.5	1906	2078	22	10	2000
2000	2341.5	2006	2178	22	10	2000
2500	2841.5	2506	2678	28	13	2600
3000	3341.5	3006	3178	32	15	3000

Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of round chamfering. (Recommended height 5 mm)

Note 2) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the work pieces and facilities around the table.

Note 3) The Z-phase first detecting position from the stroke end of the motor side

LEF Series
Electric Actuator/ Specific Product Precautions 1

Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 8 for Electric Actuator Precautions.

Design

⚠Caution

1. Do not apply a load in excess of the specification limits.

Select a suitable actuator by work load and allowable moment. If the product is used outside of the specification limits, the eccentric load applied to the guide will be excessive and have adverse effects such as creating play on the guide, degrading accuracy and shortening the life of the product.

2. Do not use the product in applications where excessive external force or impact force is applied to it.

This can cause a failure.

Selection

⚠Warning

1. Do not increase the speed in excess of the specification limits.

Select a suitable actuator by the relationship between the allowable work load and speed, and the allowable speed of each stroke. If the product is used outside of the specification limits, it will have adverse effects such as creating noise, degrading accuracy and shortening the life of the product.

2. Do not use the product in applications where excessive external force or impact force is applied to it.

This can cause a failure.

3. When the product repeatedly cycles with partial strokes (see the table below), operate it at a full stroke at least once every dozens of cycles.

Otherwise, lubrication can run out.

Model	Partial stroke
LEFS25	65 mm or less
LEFS32	70 mm or less
LEFS40	105 mm or less

4. When external force is applied to the table, it is necessary to add external force to the work load as the total carried load for the sizing.

When a cable duct or flexible moving tube is attached to the actuator, the sliding resistance of the table increases and may lead to operational failure of the product.

5. The forward/reverse torque limit is set to 800% as default.

When the product is operated with a smaller value than 300%, acceleration when driving can decrease. Set the value after confirming the actual device to be used.

Handling

⚠Caution

1. Do not allow the table to hit the end of stroke.

When incorrect instructions are inputted, such as using the product outside of the specification limits or operation outside of actual stroke through changes in the controller/driver setting and/or origin position, the table may collide against the stroke end of the actuator. Check these points before use.

If the table collides against the stroke end of the actuator, the guide, belt or internal stopper can be broken. This may lead to abnormal operation.

Handle the actuator with care when it is used in the vertical direction as the workpiece will fall freely from its own weight.

2. The actual speed of this actuator is affected by the work load and stroke.

Check the specifications with reference to the model selection section of the catalog.

3. Do not apply a load, impact or resistance in addition to the transferred load during return to origin.

4. Do not dent, scratch or cause other damage to the body and table mounting surfaces.

This may cause unevenness in the mounting surface, play in the guide or an increase in the sliding resistance.

5. Do not apply strong impact or an excessive moment while mounting a workpiece.

If an external force over the allowable moment is applied, it may cause play in the guide or an increase in the sliding resistance.

6. Keep the flatness of mounting surface should be within 0.1 mm/500 mm.

Unevenness of a workpiece or base mounted on the body of the product may cause play in the guide and an increase in the sliding resistance.

7. When mounting the product, keep a 40 mm or longer diameter for bends in the cable.

8. Do not hit the table with the workpiece in the positioning operation and positioning range.

9. Grease is applied to the dust seal band for sliding. When wiping off the grease to remove foreign matter etc., be sure to apply it again.

10. For bottom mounting, the dust seal band may be deflected.

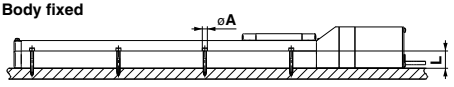
Handling

⚠Caution

11. When mounting the product, use screws with adequate length and tighten them with adequate torque.

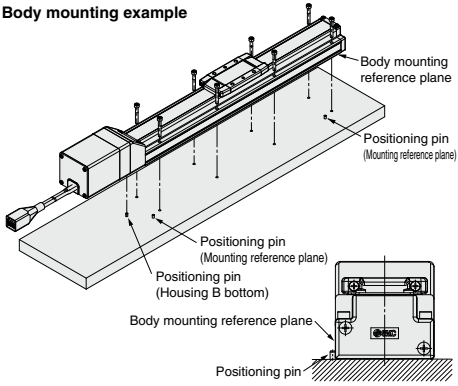
Tightening the screws with a higher torque than recommended may cause a malfunction, whilst the tightening with a lower torque can cause the displacement of the mounting position or in extreme conditions the actuator could become detached from its mounting position.

Body fixed



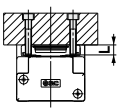
Model	Screw size	Max. tightening torque [N·m]	øA [mm]	L [mm]
LEF□25	M4	1.5	4.5	24
LEF□32	M5	3	5.5	30
LEF□40	M6	5.2	6.6	31

Body mounting example



The traveling parallelism is the reference plane for the body mounting reference plane. If the traveling parallelism for a table is required, set the reference plane against positioning pins etc.

Workpiece fixed



Model	Screw size	Max. tightening torque [N·m]	L (Max. screw-in depth) [mm]
LEF□25	M5 x 0.8	3.0	8
LEF□32	M6 x 1	5.2	9
LEF□40	M8 x 1.25	12.5	13

To prevent the workpiece retaining screws from touching the body, use screws that are 0.5 mm or shorter than the maximum screw-in depth. If long screws are used, they can touch the body and cause a malfunction etc.

12. Do not operate by fixing the table and moving the actuator body.

13. Check the specifications for the minimum speed of each actuator.

Otherwise, unexpected malfunctions, such as knocking, may occur.

14. The belt drive actuator cannot be used vertically for applications.

Maintenance

⚠Warning

Maintenance frequency

Perform maintenance according to the table below.

Frequency	Appearance check	Internal check
Inspection before daily operation	○	—
Inspection every 6 months/1000 km/ 5 million cycles*	○	○

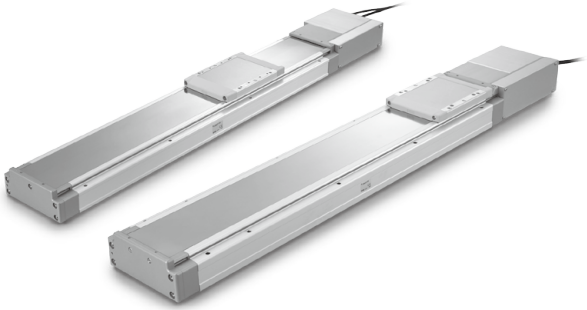
* Select whichever comes first.

- **Items for visual appearance check**
  1. Loose set screws, Abnormal dirt
  2. Check of flaw and cable joint
  3. Vibration, Noise
- **Items for internal check**
  1. Lubricant condition on moving parts.
  2. Loose or mechanical play in fixed parts or fixing screws.

AC Servo Motor

Ball Screw Drive *LEJS Series*

Belt Drive *LEJB Series*



AC Servo Motor Driver *LECYM/LECYU Series*

Model Selection

LEJS Series ▶ Page 714 LEJB Series ▶ Page 719

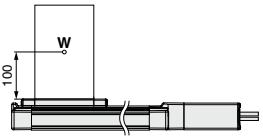
Selection Procedure

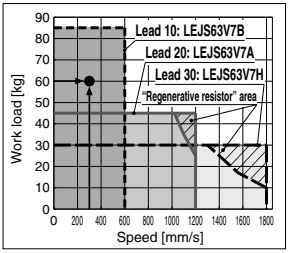
Step 1 Check the speed–work load. → **Step 2** Check the cycle time. → **Step 3** Check the allowable moment.

Selection Example

Operating conditions

- Work load: 60 [kg]
- Speed: 300 [mm/s]
- Acceleration/Deceleration: 3000 [mm/s^2]
- Stroke: 300 [mm]
- Mounting orientation: Horizontal
- External force: 10 [N]
- Workpiece mounting condition:





<Speed–Work load graph> (LEJS63)

Step 1 Check the speed–work load.

Select the product by referring to "Speed–Work Load Graph" (Page 703).
Selection example) The **LEJS63V7B-300** is temporarily selected based on the graph shown on the right side.

The regenerative resistor may be necessary.
Refer to page 703 for "Conditions for Regenerative Resistor (Guide)".

Step 2 Check the cycle time.

Refer to method 1 for a rough estimate, and method 2 for a more precise value.

Method 1: Check the cycle time graph (Pages 704 and 705)

The graph is based on the maximum speed of each size.

Method 2: Calculation

Cycle time T can be found from the following equation.

$$T = T1 + T2 + T3 + T4 \text{ [s]}$$

- T1 and T3 can be obtained by the following equation.

$$T1 = V/a1 \text{ [s]} \qquad T3 = V/a2 \text{ [s]}$$

The acceleration and deceleration values have upper limits depending on the workpiece mass and the duty ratio.
Check that they do not exceed the upper limit, by referring to "Work load–Acceleration/Deceleration Graph (Guide)" (Pages 706 to 708).
For the ball screw type, there is an upper limit of the speed depending on the stroke. Check that if it does not exceed the upper limit, by referring to the specifications (Page 715).

- T2 can be found from the following equation.

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} \text{ [s]}$$

- T4 varies depending on the motor type and load. The value below is recommended.

$$T4 = 0.05 \text{ [s]}$$

Calculation example)
T1 to T4 can be calculated as follows.

$T1 = V/a1 = 300/3000 = 0.1$ [s],

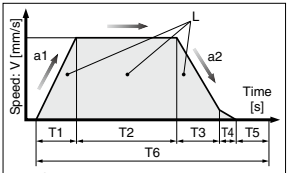
$T3 = V/a2 = 300/3000 = 0.1$ [s]

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{300 - 0.5 \cdot 300 \cdot (0.1 + 0.1)}{300} = 0.90 \text{ [s]}$$

$T4 = 0.05$ [s]

Therefore, the cycle time can be obtained as follows.

$T = T1 + T2 + T3 + T4$
$= 0.1 + 0.90 + 0.1 + 0.05$
$= \mathbf{1.15}$ **[s]**



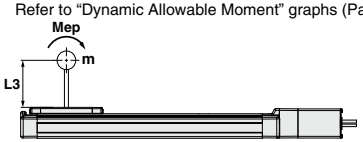
L : Stroke [mm]
V : Speed [mm/s]
a1: Acceleration [mm/s^2]
a2: Deceleration [mm/s^2]

T1: Acceleration time [s]
Time until reaching the set speed
T2: Constant speed time [s]
Time while the actuator is operating at a constant speed
T3: Deceleration time [s]
Time from the beginning of the constant speed operation to stop
T4: Settling time [s]
Time until positioning is completed
T5: Resting time [s]
Time the product is not running
T6: Total time [s]
Total time from T1 to T5

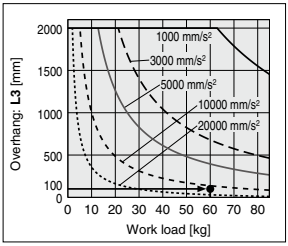
Duty ratio: Ratio of T to T6
$T \div T6 \times 100$

Step 3 Check the allowable moment.

Refer to "Dynamic Allowable Moment" graphs (Pages 709 and 710).



Selection example) Select the **LEJS63V7B-300** from the graph on the right side.
Confirm that the external force is 20 [N] or less.
(The external force is the resistance due to cable duct, flexible trunking or air tubing.)

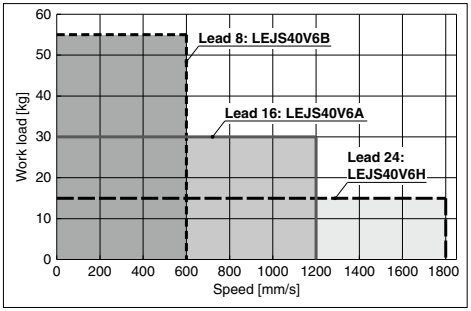


<Dynamic allowable moment> (LEJS63)

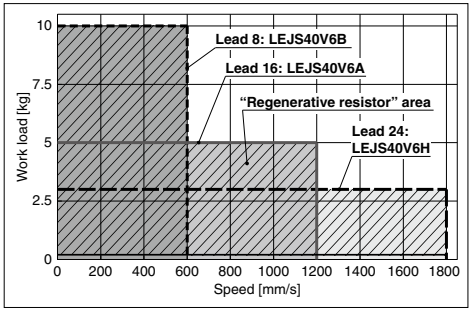
Speed–Work Load Graph/Conditions for "Regenerative Resistor" (Guide)

LEJS40V6□/Ball Screw Drive

Horizontal

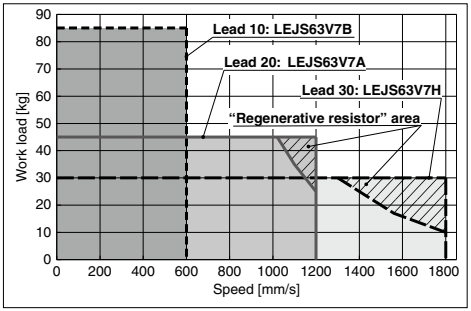


Vertical

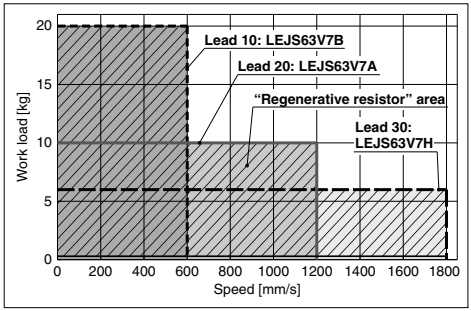


LEJS63V7□/Ball Screw Drive

Horizontal

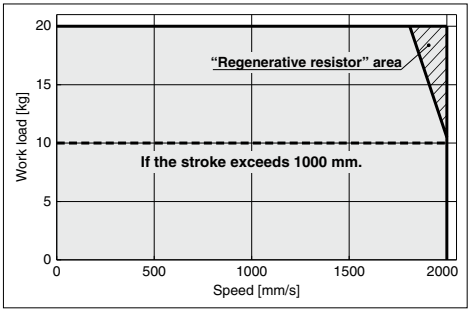


Vertical



LEJB40V6T/Belt Drive

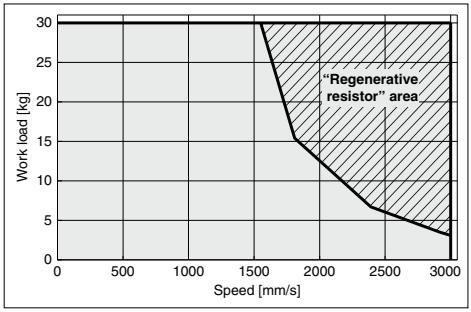
Horizontal



∗ When the stroke of the LEJB40 series exceeds 1000 mm, the work load is 10 kg.

LEJB63V7T/Belt Drive

Horizontal



"Regenerative resistor" area

∗ When using the actuator in the "Regenerative resistor" area, download the "AC servo capacity selection program/SigmaJunmaSize+" from the SMC website. Then, calculate the necessary regenerative resistor capacity to prepare an appropriate external regenerative resistor.
∗ Regenerative resistor should be provided by the customer.

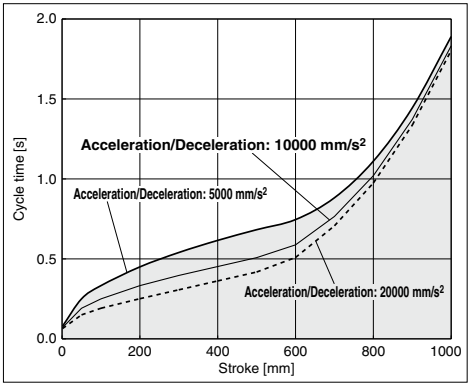
Applicable Motor/Driver

Model	Applicable model	
	Motor	Servopack (SMC driver)
LEJ□40□	SGMJV-01A3A	SGDV-R90A11□ (LECYM2-V5) SGDV-R90A21□ (LECYU2-V5)
LEJ□63□	SGMJV-02A3A	SGDV-1R6A11□ (LECYM2-V7) SGDV-1R6A21□ (LECYU2-V7)

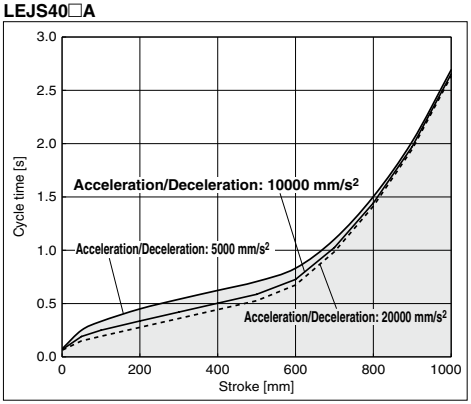
Cycle Time Graph (Guide)

LEJS40/Ball Screw Drive

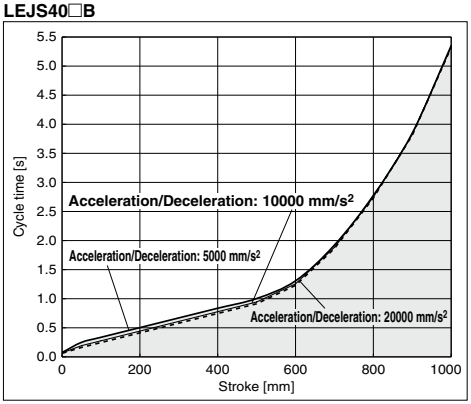
LEJS40□H



LEJS40□A

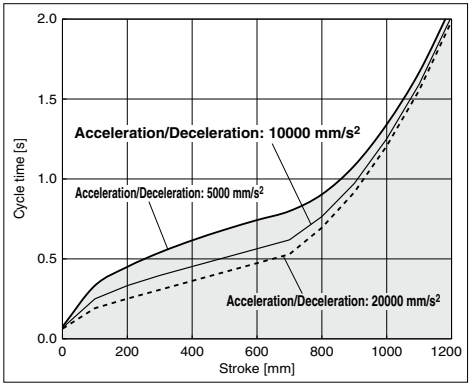


LEJS40□B

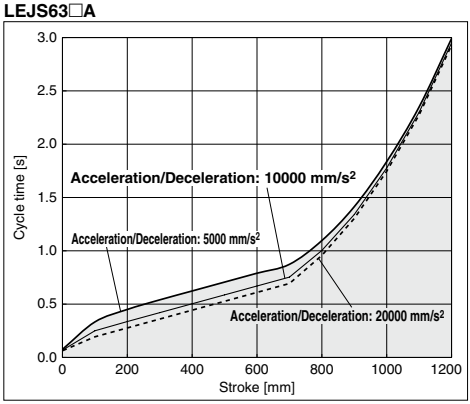


LEJS63/Ball Screw Drive

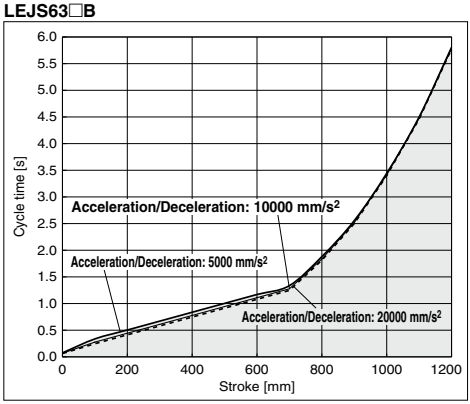
LEJS63□H



LEJS63□A



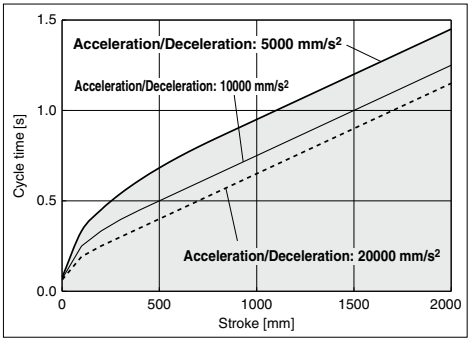
LEJS63□B



∗ Maximum speed/acceleration/deceleration values graph for each stroke

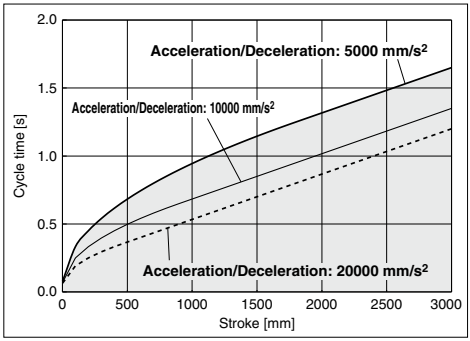
Cycle Time Graph (Guide)

LEJB40/Belt Drive



∗ Maximum speed/acceleration/deceleration values graph for each stroke

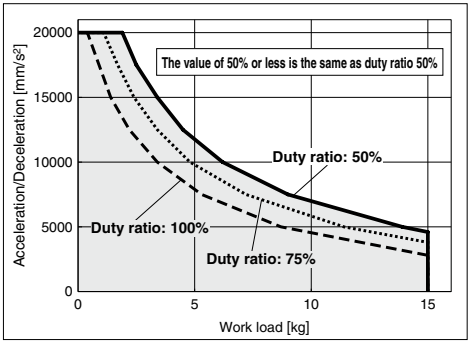
LEJB63/Belt Drive



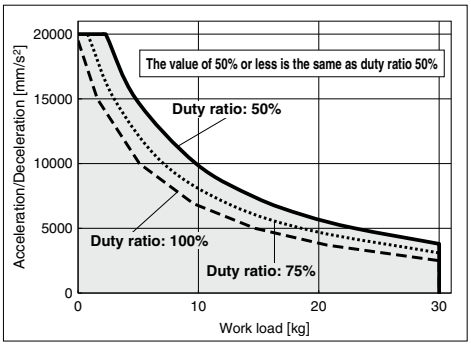
Work Load–Acceleration/Deceleration Graph (Guide)

LEJS40/Ball Screw Drive: Horizontal

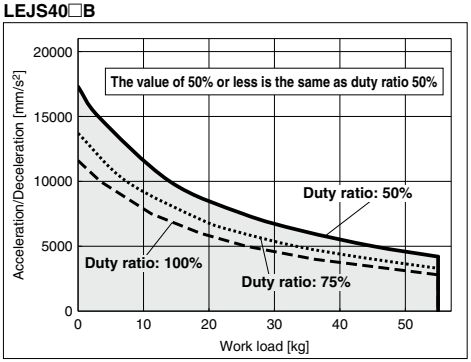
LEJS40□H



LEJS40□A

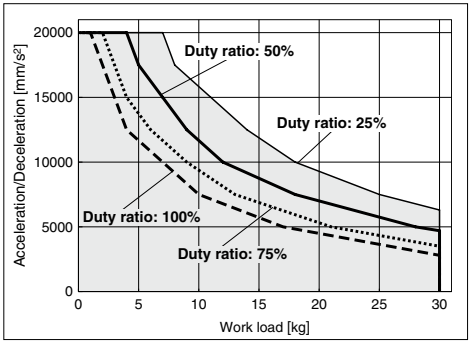


LEJS40□B

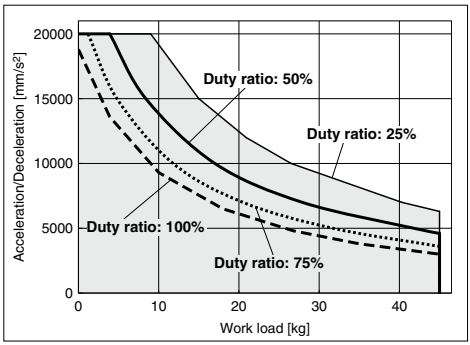


LEJS63/Ball Screw Drive: Horizontal

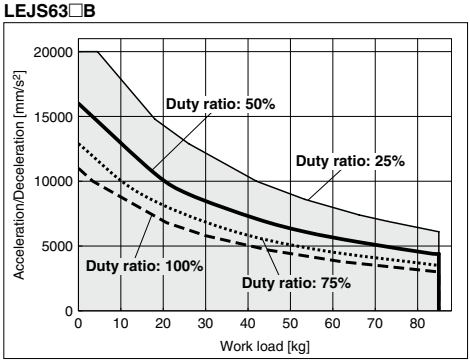
LEJS63□H



LEJS63□A



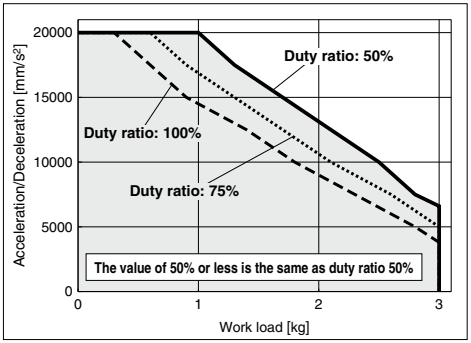
LEJS63□B



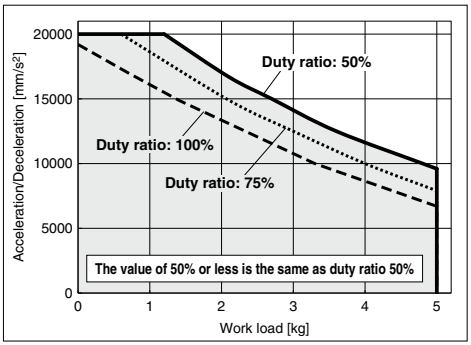
Work Load–Acceleration/Deceleration Graph (Guide)

LEJS40/Ball Screw Drive: Vertical

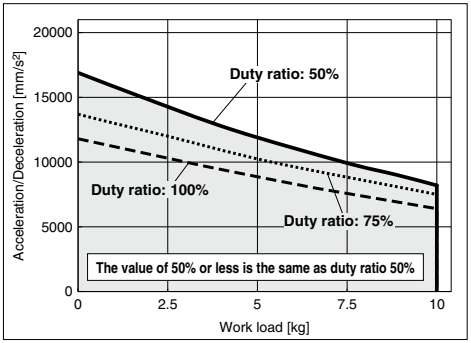
LEJS40□H



LEJS40□A

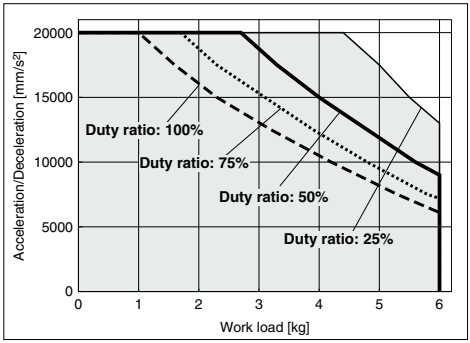


LEJS40□B

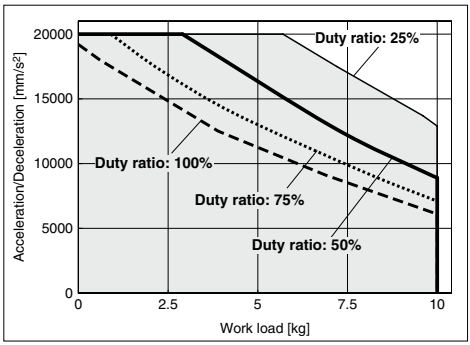


LEJS63/Ball Screw Drive: Vertical

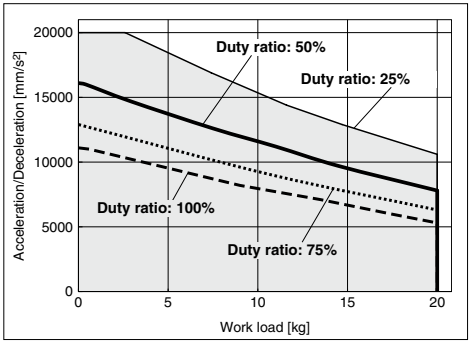
LEJS63□H



LEJS63□A

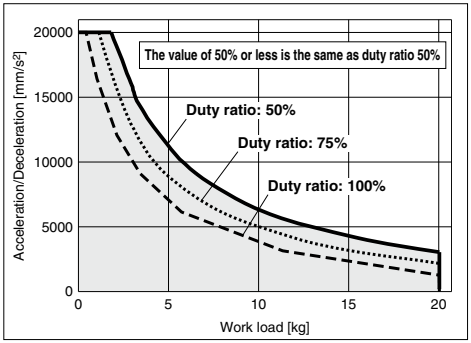


LEJS63□B

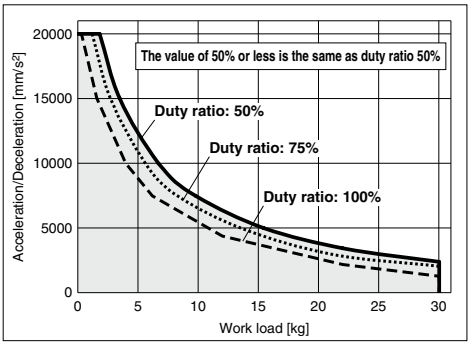


Work Load–Acceleration/Deceleration Graph (Guide)

LEJB40/Belt Drive: Horizontal



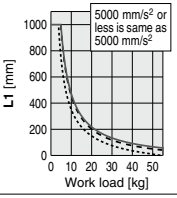
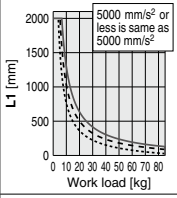
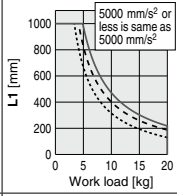
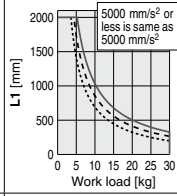
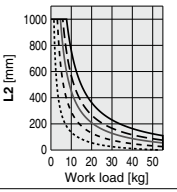
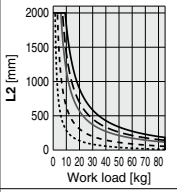
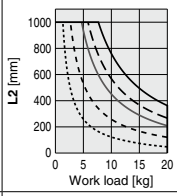
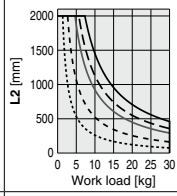
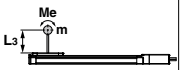
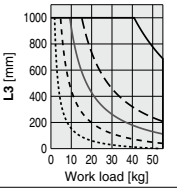
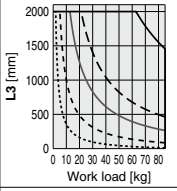
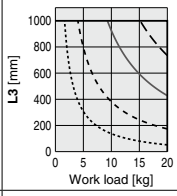
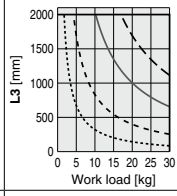
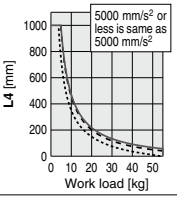
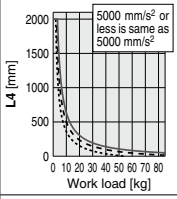
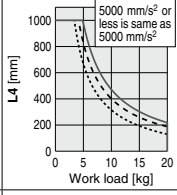
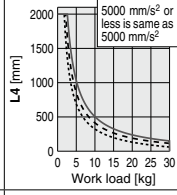
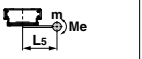
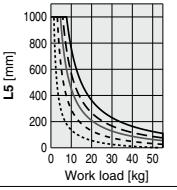
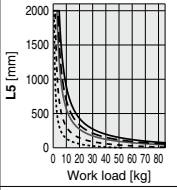
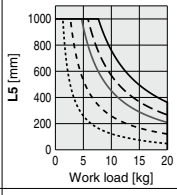
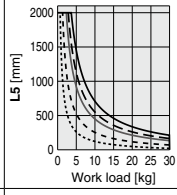
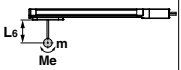
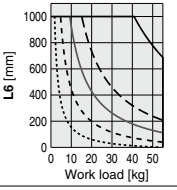
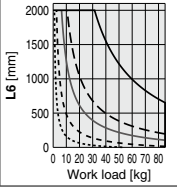
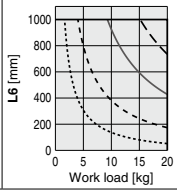
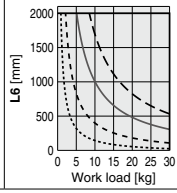
LEJB63/Belt Drive: Horizontal



Dynamic Allowable Moment

* This graph shows the amount of allowable overhang (guide unit) when the center of gravity of the workpiece overhangs in one direction. When selecting the overhang, refer to "Calculation of Guide Load Factor" or the Electric Actuator Selection Software for confirmation, http://www.smcworld.com

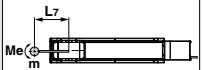
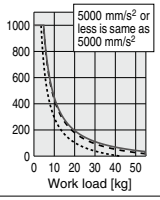
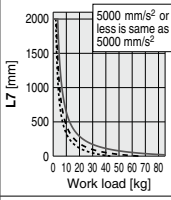
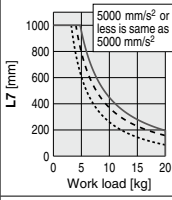
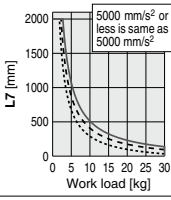
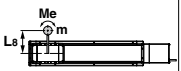
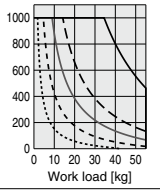
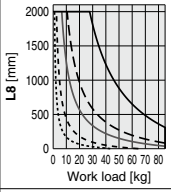
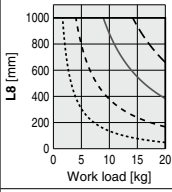
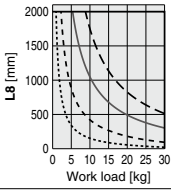
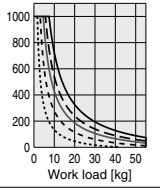
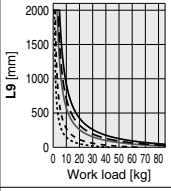
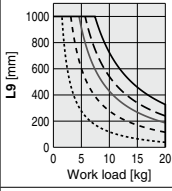
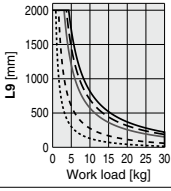
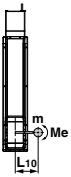
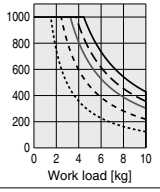
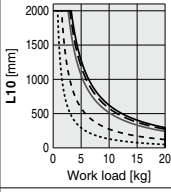
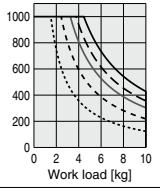
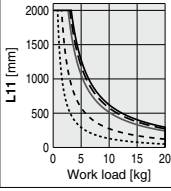
Acceleration/Deceleration —— 1000 mm/s² – – – 3000 mm/s² —— 5000 mm/s² - - - - 10000 mm/s² ·····20000 mm/s²

Orientation	Load overhanging direction **m** : Work load [kg] **Me:** Dynamic allowable moment [N·m] **L** : Overhang to the work load center of gravity [mm]		Model			
			LEJS40	**LEJS63**	**LEJB40**	**LEJB63**
Horizontal		X				
		Y				
		Z				
Bottom		X				
		Y				
		Z				

Dynamic Allowable Moment

* This graph shows the amount of allowable overhang (guide unit) when the center of gravity of the workpiece overhangs in one direction. When selecting the overhang, refer to "Calculation of Guide Load Factor" or the Electric Actuator Selection Software for confirmation, http://www.smcworld.com

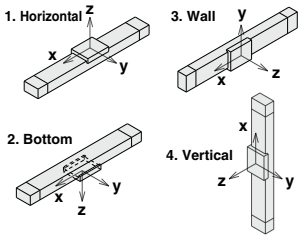
Acceleration/Deceleration —— 1000 mm/s² – – – 3000 mm/s² —— 5000 mm/s² - - - - 10000 mm/s² ·····20000 mm/s²

Orientation	Load overhanging direction **m** : Work load [kg] **Me:** Dynamic allowable moment [N·m] **L** : Overhang to the work load center of gravity [mm]		Model			
			LEJS40	**LEJS63**	**LEJB40**	**LEJB63**
Wall		X				
		Y				
		Z				
Vertical		Y				
		Z				

Calculation of Guide Load Factor

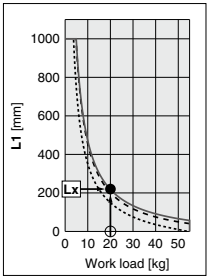
1. Decide operating conditions.
   Model: LEJS/LEJB
   Size: 40/63
   Mounting orientation: Horizontal/Bottom/Wall/Vertical
   Acceleration [mm/s²]: **a**
   Work load [kg]: **m**
   Work load center position [mm]: **Xc/Yc/Zc**
2. Select the target graph with reference to the model, size and mounting orientation.
3. Based on the acceleration and work load, obtain the overhang [mm]: **Lx/Ly/Lz** from the graph.
4. Calculate the load factor for each direction.
   α**x = Xc/Lx**, α**y = Yc/Ly**, α**z = Zc/Lz**
5. Confirm the total of α**x**, α**y** and α**z** is 1 or less.
   α**x + αy + αz ≤ 1**
   When 1 is exceeded, please consider a reduction of acceleration and work load, or a change of the work load center position and series.

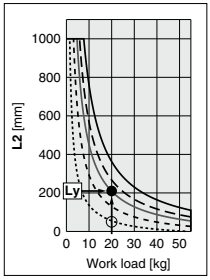
Mounting orientation



Example

1. Operating conditions
   Model: LEJS
   Size: 40
   Mounting orientation: Horizontal
   Acceleration [mm/s²]: 5000
   Work load [kg]: 20
   Work load center position [mm]: **Xc = 0**, **Yc = 50**, **Zc = 200**
2. Select the graph on page 709, top and left side first row.
3. **Lx = 220 mm**, **Ly = 210 mm**, **Lz = 430 mm**
4. The load factor for each direction can be obtained as follows.
   α**x = 0/220 = 0**
   α**y = 50/210 = 0.24**
   α**z = 200/430 = 0.47**
5. α**x + αy + αz = 0.71 ≤ 1**





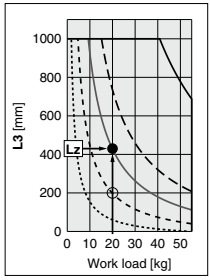
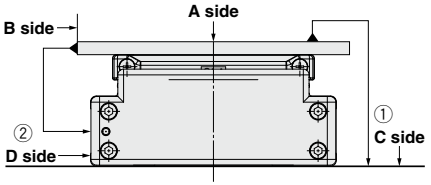


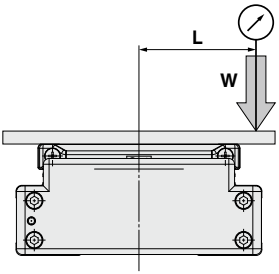
Table Accuracy (Reference Value)

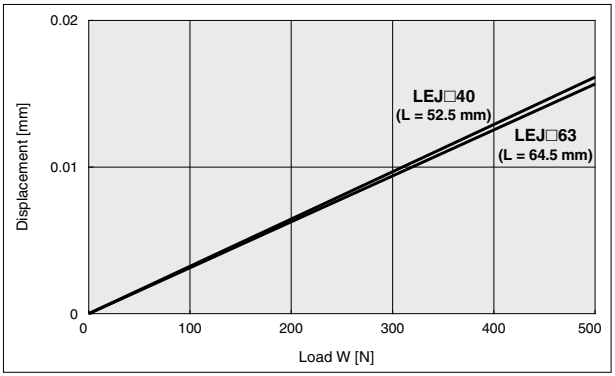


Model	Traveling parallelism [mm] (Every 300 mm)	
	① C side traveling parallelism to A side	② D side traveling parallelism to B side
LEJ□40	0.05	0.03
LEJ□63	0.05	0.03

Note) Traveling parallelism does not include the mounting surface accuracy.

Table Displacement (Reference Value)





Note) This displacement is measured when a 15 mm aluminum plate is mounted and fixed on the table. (Table clearance is included.)

Electric Actuator/High Rigidity Slider Type
Ball Screw Drive

LEJS Series LEJS40, 63

Please contact SMC for clean room specification and the models compatible with secondary batteries.

How to Order

LEJS H 40 V6 A – 500 □ – □ □ □ □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

❶ Accuracy

Nil	Basic type
H	High precision type

❷ Size

40
63

❸ Motor type *1

Symbol	Type	Output [W]	Actuator size	Compatible driver
V6	AC servo motor (Absolute encoder)	100	40	LECYM2-V5 LECYU2-V5
V7	AC servo motor (Absolute encoder)	200	63	LECYM2-V7 LECYU2-V7

*1 For motor type V6, the compatible driver part number suffix is V5.

❹ Lead [mm]

Symbol	LEJS40	LEJS63
H	24	30
A	16	20
B	8	10

❺ Stroke [mm] *2

200
to
1500

*2 Refer to the applicable stroke table for details.

❻ Motor option

Nil	Without option
B	With lock

❼ Cable type *4, *5

Nil	Without cable
S	Standard cable
R	Robotic cable (Flexible cable)

*5 The motor and encoder cables are included. (The lock cable is included when the motor with lock option is selected.)

❽ Cable length [m] *4, *6

Nil	Without cable
3	3
5	5
A	10
C	20

*6 The length of the motor, encoder and lock cables are the same.

*4 When the driver type is selected, the cable is included. Select cable type and cable length.

❾ Driver type *4

	Compatible driver	Power supply voltage [V]
Nil	Without driver	—
M2	LECYM2-V□	200 to 230
U2	LECYU2-V□	200 to 230

❿ I/O cable length [m] *7

Nil	Without cable
H	Without cable (Connector only)
1	1.5

*7 When "Without driver" is selected for driver type, only "Nil: Without cable" can be selected.
Refer to page 773 if I/O cable is required.
(Options are shown on page 773.)

Applicable Stroke Table *3

●: Standard

Model \ Stroke [mm]	200	300	400	500	600	700	800	900	1000	1200	1500
LEJS40	●	●	●	●	●	●	●	●	●	●	—
LEJS63	—	●	●	●	●	●	●	●	●	●	●

*3 Please consult with SMC for non-standard strokes as they are produced as special orders.

For auto switches, refer to pages 724 to 726.

Compatible Driver

Driver type	MECHATROLINK-Ⅱ type	MECHATROLINK-Ⅲ type
		
Series	LECYM	LECYU
Applicable network	MECHATROLINK-Ⅱ	MECHATROLINK-Ⅲ
Control encoder	Absolute 20-bit encoder	
Communication device	USB communication, RS-422 communication	
Power supply voltage [V]	200 to 230 VAC (50/60 Hz)	
Reference page	Page 766	

Specifications

AC Servo Motor (100/200 W)

Model			LEJS40V6			LEJS63V7		
Actuator specifications	Stroke [mm] Note 1)		200, 300, 400, 500, 600, 700, 800 900, 1000, 1200			300, 400, 500, 600, 700, 800, 900 1000, 1200, 1500		
	Work load [kg] Note 2)	Horizontal	15	30	55	30	45	85
		Vertical	3	5	10	6	10	20
	Speed Note 3) [mm/s]	Stroke range: Up to 500	1800	1200	600	1800	1200	600
		501 to 600	1580	1050	520	1800	1200	600
		601 to 700	1170	780	390	1800	1200	600
		701 to 800	910	600	300	1390	930	460
		801 to 900	720	480	240	1110	740	370
		901 to 1000	580	390	190	900	600	300
		1001 to 1100	480	320	160	750	500	250
		1101 to 1200	410	270	130	630	420	210
		1201 to 1300	—	—	—	540	360	180
		1301 to 1400	—	—	—	470	310	150
		1401 to 1500	—	—	—	410	270	130
	Max. acceleration/deceleration [mm/s²]		20000 (Refer to pages 706 and 707 for limit according to work load and duty ratio.)					
	Positioning repeatability [mm]	Basic type	±0.02					
		High precision type	±0.01					
	Lost motion [mm] Note 4)	Basic type	0.1 or less					
		High precision type	0.05 or less					
	Lead [mm]		24	16	8	30	20	10
	Impact/Vibration resistance [m/s²] Note 5)		50/20					
	Actuation type		Ball screw					
	Guide type		Linear guide					
	Operating temperature range [°C]		5 to 40					
	Operating humidity range [%RH]		90 or less (No condensation)					
	Regenerative resistor		May be required depending on speed and work load. (Refer to page 703.)					
Electric specifications	Motor output [W]/Size [mm]		100/□40			200/□60		
	Motor type		AC servo motor (200 VAC)					
	Encoder		Absolute 20-bit encoder (Resolution: 1048576 p/rev)					
	Power consumption [W] Note 6)	Horizontal	65			80		
		Vertical	165			235		
	Standby power consumption when operating [W] Note 7)	Horizontal	2			2		
		Vertical	10			12		
	Max. instantaneous power consumption [W] Note 8)		445			725		
Lock unit specifications	Type Note 9)		Non-magnetizing lock					
	Holding force [N]		67	101	202	108	162	324
	Power consumption at 20°C [W] Note 10)		5.5			6		
	Rated voltage [V]		24 VDC $^{0}_{-10\%}$					

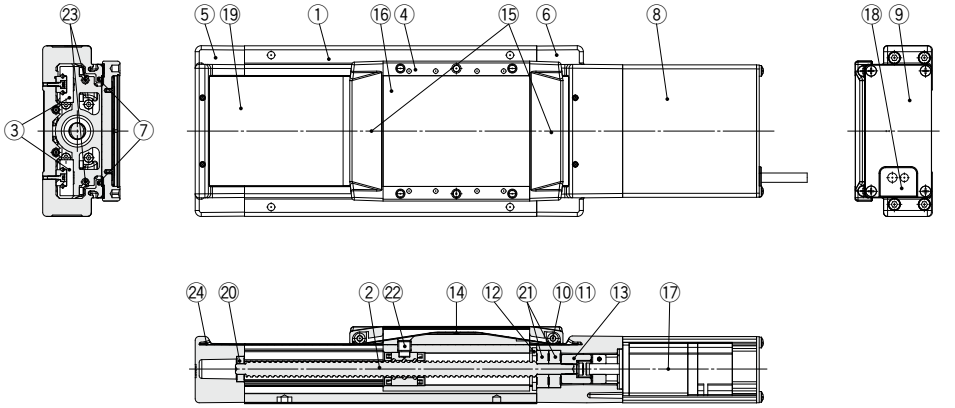
Note 1) Please consult with SMC for non-standard strokes as they are produced as special orders.
Note 2) Check "Speed–Work Load Graph (Guide)" on page 703.
Note 3) The allowable speed changes according to the stroke.
Note 4) A reference value for correcting an error in reciprocal operation.
Note 5) Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. Test was performed in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
Note 6) The power consumption (including the driver) is for when the actuator is operating.
Note 7) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.
Note 8) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.
Note 9) Only when motor option "With lock" is selected.
Note 10) For an actuator with lock, add the power consumption for the lock.
Note 11) Sensor magnet position is located in the table center. For detailed dimensions, refer to "Auto Switch Mounting Position".
Note 12) Do not allow collisions at either end of the table traveling distance. Additionally, when running the positioning operation, do not set within 2 mm of both ends.
Note 13) For the manufacture of intermediate strokes, please contact SMC. (LEJS40/Manufacturable stroke range: 200 to 1200 mm, LEJS63/ Manufacturable stroke range: 300 to 1500 mm)

Weight

Model	LEJS40									
Stroke [mm]	200	300	400	500	600	700	800	900	1000	1200
Product weight [kg]	5.6	6.4	7.1	7.9	8.7	9.4	10.2	11.0	11.7	13.3
Additional weight with lock [kg]	0.3 (Absolute encoder)									

Model	LEJS63									
Stroke [mm]	300	400	500	600	700	800	900	1000	1200	1500
Product weight [kg]	11.4	12.7	13.9	15.2	16.4	17.7	18.9	20.1	22.6	26.4
Additional weight with lock [kg]	0.7 (Absolute encoder)									

Construction



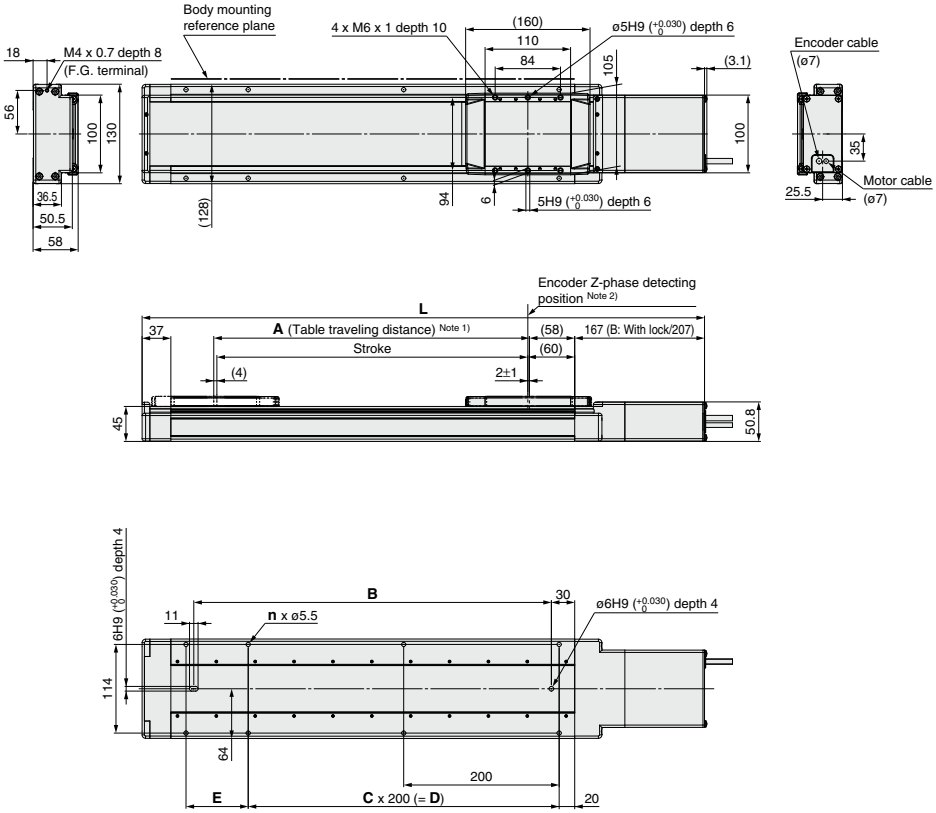
Component Parts

No	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Ball screw assembly**	—	
3	**Linear guide assembly**	—	
4	**Table**	Aluminum alloy	Anodized
5	**Housing A**	Aluminum alloy	Coating
6	**Housing B**	Aluminum alloy	Coating
7	**Seal magnet**	—	
8	**Motor cover**	Aluminum alloy	Anodized
9	**End cover A**	Aluminum alloy	Anodized
10	**Roller shaft**	Stainless steel	
11	**Roller**	Synthetic resin	
12	**Bearing stopper**	Carbon steel	

No	Description	Material	Note
13	**Coupling**	—	
14	**Table cap**	Synthetic resin	
15	**Seal band holder**	Synthetic resin	
16	**Blanking plate**	Aluminum alloy	Anodized
17	**Motor**	—	
18	**Grommet**	NBR	
19	**Dust seal band**	Stainless steel	
20	**Bearing**	—	
21	**Bearing**	—	
22	**Nut fixing pin**	Carbon steel	
23	**Magnet**	—	
24	**Seal band stopper**	Stainless steel	

Dimensions: Ball Screw Drive

LEJS40



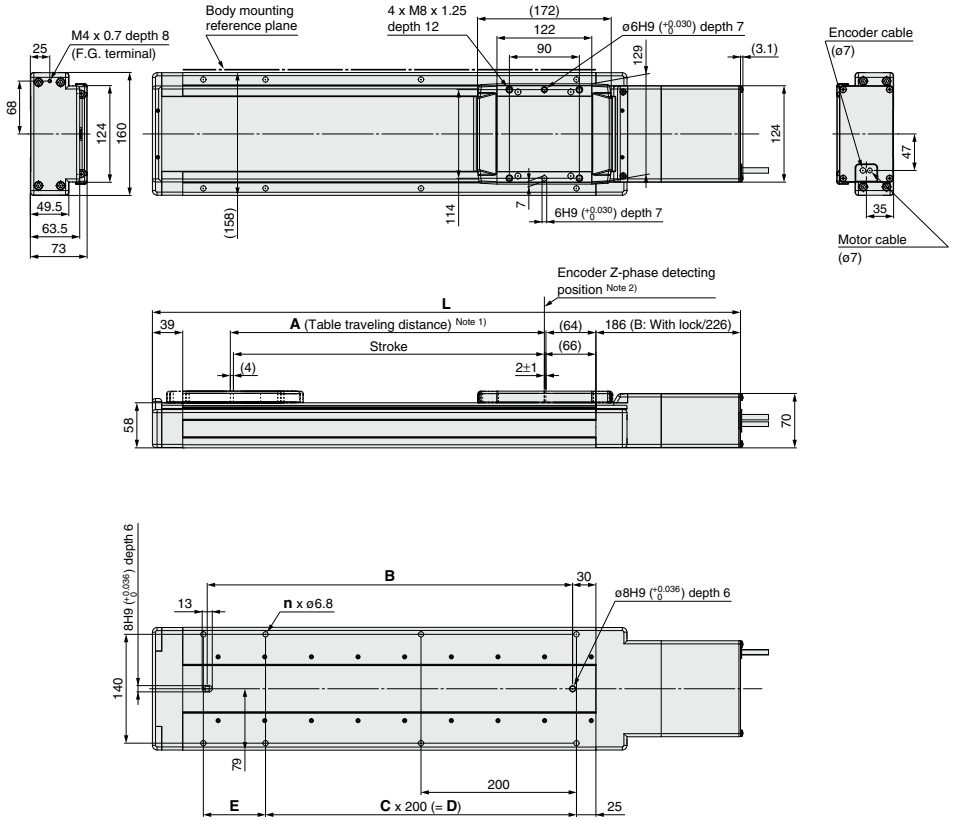
Note 1) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.
Note 2) The Z-phase first detecting position from the stroke end of the motor side
Note 3) Auto switch magnet is located in the table center.

[mm]

Model	L		A	B	n	C	D	E
	Without lock	With lock						
LEJS40V□□-200□-□□□□	523.5	563.5	206	260	6	1	200	80
LEJS40V□□-300□-□□□□	623.5	663.5	306	360	6	1	200	180
LEJS40V□□-400□-□□□□	723.5	763.5	406	460	8	2	400	80
LEJS40V□□-500□-□□□□	823.5	863.5	506	560	8	2	400	180
LEJS40V□□-600□-□□□□	923.5	963.5	606	660	10	3	600	80
LEJS40V□□-700□-□□□□	1023.5	1063.5	706	760	10	3	600	180
LEJS40V□□-800□-□□□□	1123.5	1163.5	806	860	12	4	800	80
LEJS40V□□-900□-□□□□	1223.5	1263.5	906	960	12	4	800	180
LEJS40V□□-1000□-□□□□	1323.5	1363.5	1006	1060	14	5	1000	80
LEJS40V□□-1200□-□□□□	1523.5	1563.5	1206	1260	16	6	1200	80

Dimensions: Ball Screw Drive

LEJS63



Note 1) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.
Note 2) The Z-phase first detecting position from the stroke end of the motor side
Note 3) Auto switch magnet is located in the table center.

[mm]

Model	L		A	B	n	C	D	E
	Without lock	With lock						
LEJS63V□□-300□-□□□□	656.5	696.5	306	370	6	1	200	180
LEJS63V□□-400□-□□□□	756.5	796.5	406	470	8	2	400	80
LEJS63V□□-500□-□□□□	856.5	896.5	506	570	8	2	400	180
LEJS63V□□-600□-□□□□	956.5	996.5	606	670	10	3	600	80
LEJS63V□□-700□-□□□□	1056.5	1096.5	706	770	10	3	600	180
LEJS63V□□-800□-□□□□	1156.5	1196.5	806	870	12	4	800	80
LEJS63V□□-900□-□□□□	1256.5	1296.5	906	970	12	4	800	180
LEJS63V□□-1000□-□□□□	1356.5	1396.5	1006	1070	14	5	1000	80
LEJS63V□□-1200□-□□□□	1556.5	1596.5	1206	1270	16	6	1200	80
LEJS63V□□-1500□-□□□□	1856.5	1896.5	1506	1570	18	7	1400	180

Electric Actuator/High Rigidity Slider Type
Belt Drive
LEJB Series LEJB40, 63

CE RoHS

How to Order

LEJB **40** **V6** **T** – **500** □ – □ □ □ □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

❶ Size

40
63

❷ Motor type *1

Symbol	Type	Output [W]	Actuator size	Compatible driver
V6	AC servo motor (Absolute encoder)	100	40	LECYM2-V5 LECYU2-V5
V7	AC servo motor (Absolute encoder)	200	63	LECYM2-V7 LECYU2-V7

*1 For motor type V6, the compatible driver part number suffix is V5.

❸ Lead [mm]

Symbol	LEJB40	LEJB63
T	27	42

❹ Stroke [mm] *2

200
to
3000

*2 Refer to the applicable stroke table for details.

❺ Motor option

Nil	Without option
B	With lock

❻ Cable type *4, *5

Nil	Without cable
S	Standard cable
R	Robotic cable (Flexible cable)

*5 The motor and encoder cables are included. (The lock cable is included when the motor with lock option is selected.)

❼ Cable length [m] *4, *6

Nil	Without cable
3	3
5	5
A	10
C	20

*6 The length of the motor, encoder and lock cables are the same.

*4 When the driver type is selected, the cable is included. Select cable type and cable length.

❽ Driver type *4

	Compatible driver	Power supply voltage [V]
Nil	Without driver	—
M2	LECYM2-V□	200 to 230
U2	LECYU2-V□	200 to 230

❾ I/O cable length [m] *7

Nil	Without cable
H	Without cable (Connector only)
1	1.5

*7 When "Without driver" is selected for driver type, only "Nil: Without cable" can be selected.
Refer to page 773 if I/O cable is required.
(Options are shown on page 773.)

Applicable Stroke Table *3

●: Standard

Model \ Stroke [mm]	200	300	400	500	600	700	800	900	1000	1200	1500	2000	3000
LEJB40	●	●	●	●	●	●	●	●	●	●	●	●	—
LEJB63	—	●	●	●	●	●	●	●	●	●	●	●	●

*3 Please consult with SMC for non-standard strokes as they are produced as special orders.

For auto switches, refer to pages 724 to 726.

Compatible Driver

Driver type	MECHATROLINK-Ⅱ type 	MECHATROLINK-Ⅲ type 
Series	LECYM	LECYU
Applicable network	MECHATROLINK-Ⅱ	MECHATROLINK-Ⅲ
Control encoder	Absolute 20-bit encoder	
Communication device	USB communication, RS-422 communication	
Power supply voltage [V]	200 to 230 VAC (50/60 Hz)	
Reference page	Page 766	

Specifications

AC Servo Motor

Model			LEJB40V6	LEJB63V7
Actuator specifications	Stroke [mm] Note 1)		200, 300, 400, 500, 600, 700, 800 900, 1000, 1200, 1500, 2000	300, 400, 500, 600, 700, 800 900, 1000, 1200, 1500, 2000, 3000
	Work load [kg]	Horizontal	20 (If the stroke exceeds 1000 mm: 10)	30
	Speed [mm/s] Note 2)		2000	3000
	Max. acceleration/deceleration [mm/s²]		20000 (Refer to page 708 for limit according to work load and duty ratio.)	
	Positioning repeatability [mm]		±0.04	
	Lost motion [mm] Note 3)		0.1 or less	
	Lead [mm]		27	42
	Impact/Vibration resistance [m/s²] Note 4)		50/20	
	Actuation type		Belt	
	Guide type		Linear guide	
	Allowable external force [N]		20	
	Operating temperature range [°C]		5 to 40	
	Operating humidity range [%RH]		90 or less (No condensation)	
	Regenerative resistor		May be required depending on speed and work load. (Refer to page 703.)	
Electric specifications	Motor output [W]/Size [mm]		100/□40	200/□60
	Motor type		AC servo motor (200 VAC)	
	Encoder		Absolute 20-bit encoder (Resolution: 1048576 p/rev)	
	Power consumption [W] Note 5)	Horizontal	65	190
		Vertical	—	—
	Standby power consumption when operating [W] Note 6)	Horizontal	2	2
		Vertical	—	—
	Max. instantaneous power consumption [W] Note 7)		445	725
Lock unit specifications	Type Note 8)		Non-magnetizing lock	
	Holding force [N]		59	77
	Power consumption at 20°C [W] Note 9)		5.5	6
	Rated voltage [V]		24 VDC $^{0}_{-10\%}$	

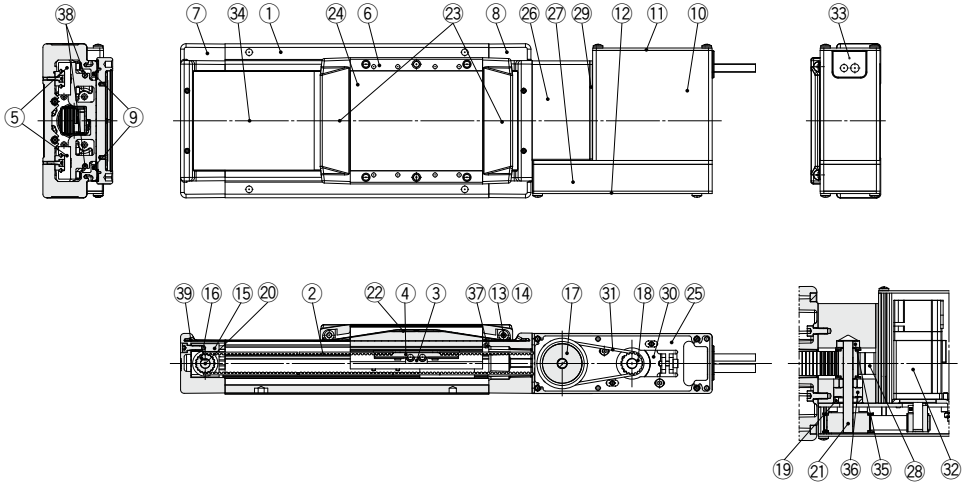
Note 1) Please consult with SMC for non-standard strokes as they are produced as special orders.
Note 2) Check "Speed–Work Load Graph (Guide)" on page 703.
Note 3) A reference value for correcting an error in reciprocal operation.
Note 4) Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. Test was performed in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
Note 5) The power consumption (including the driver) is for when the actuator is operating.
Note 6) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.
Note 7) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.
Note 8) Only when motor option "With lock" is selected.
Note 9) For an actuator with lock, add the power consumption for the lock.
Note 10) Sensor magnet position is located in the table center.
For detailed dimensions, refer to "Auto Switch Mounting Position".
Note 11) Do not allow collisions at either end of the table traveling distance. Additionally, when running the positioning operation, do not set within 2 mm of both ends.
Note 12) For the manufacture of intermediate strokes, please contact SMC.
(LEJB40/Manufacturable stroke range: 200 to 2000 mm, LEJB63/Manufacturable stroke range: 300 to 3000 mm)

Weight

Model	LEJB40											
Stroke [mm]	200	300	400	500	600	700	800	900	1000	1200	1500	2000
Product weight [kg]	5.7	6.4	7.1	7.7	8.4	9.1	9.8	10.5	11.2	12.6	14.7	18.1
Additional weight with lock [kg]	0.3 (Absolute encoder)											

Model	LEJB63											
Stroke [mm]	300	400	500	600	700	800	900	1000	1200	1500	2000	3000
Product weight [kg]	11.5	12.7	13.8	15.0	16.2	17.4	18.6	19.7	22.1	25.7	31.6	43.4
Additional weight with lock [kg]	0.7 (Absolute encoder)											

Construction



Motor details

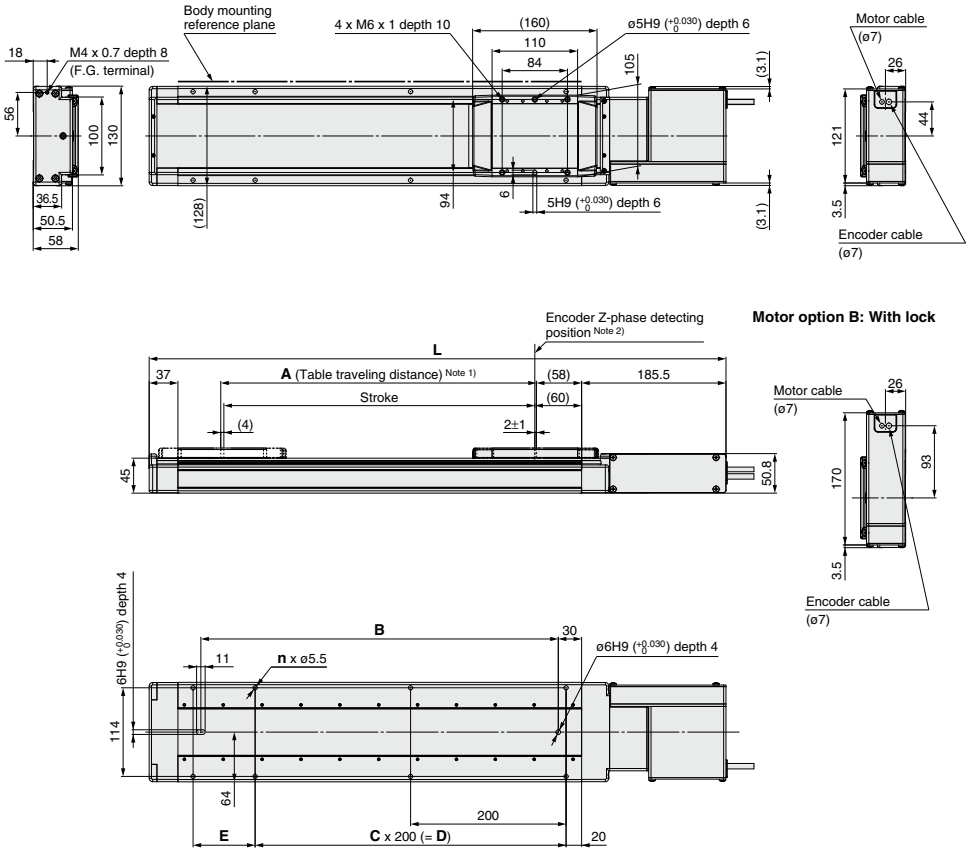
Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Belt**	—	
3	**Belt holder**	Carbon steel	
4	**Belt stopper**	Aluminum alloy	
5	**Linear guide assembly**	—	
6	**Table**	Aluminum alloy	Anodized
7	**Housing A**	Aluminum alloy	Coating
8	**Housing B**	Aluminum alloy	Coating
9	**Seal magnet**	—	
10	**Motor cover**	Aluminum alloy	Anodized
11	**End cover A**	Aluminum alloy	Anodized
12	**End cover B**	Aluminum alloy	Anodized
13	**Roller shaft**	Stainless steel	
14	**Roller**	Synthetic resin	
15	**Pulley holder**	Aluminum alloy	
16	**Drive pulley**	Aluminum alloy	
17	**Speed reduction pulley**	Aluminum alloy	
18	**Motor pulley**	Aluminum alloy	
19	**Spacer**	Aluminum alloy	
20	**Pulley shaft A**	Stainless steel	

No.	Description	Material	Note
21	**Pulley shaft B**	Stainless steel	
22	**Table cap**	Synthetic resin	
23	**Seal band holder**	Synthetic resin	
24	**Blanking plate**	Aluminum alloy	Anodized
25	**Motor mount plate**	Carbon steel	
26	**Pulley block**	Aluminum alloy	Anodized
27	**Pulley cover**	Aluminum alloy	Anodized
28	**Belt stopper**	Aluminum alloy	
29	**Side plate**	Aluminum alloy	Anodized
30	**Motor plate**	Carbon steel	
31	**Belt**	—	
32	**Motor**	—	
33	**Grommet**	NBR	
34	**Dust seal band**	Stainless steel	
35	**Bearing**	—	
36	**Bearing**	—	
37	**Stopper pin**	Stainless steel	
38	**Magnet**	—	
39	**Seal band stopper**	Stainless steel	

Dimensions: Belt Drive

LEJB40



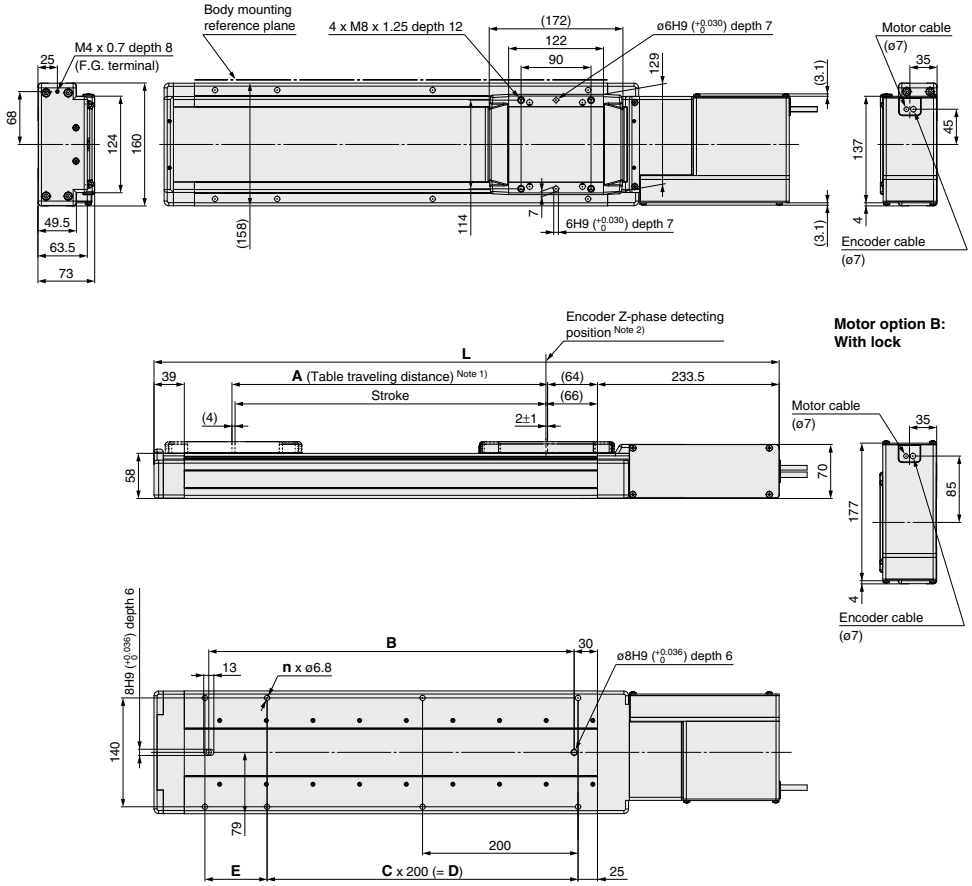
Note 1) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.
Note 2) The Z-phase first detecting position from the stroke end of the motor side
Note 3) Auto switch magnet is located in the table center.

[mm]

Model	L	A	B	n	C	D	E
LEJB40V□□-200□-□□□□	542	206	260	6	1	200	80
LEJB40V□□-300□-□□□□	642	306	360	6	1	200	180
LEJB40V□□-400□-□□□□	742	406	460	8	2	400	80
LEJB40V□□-500□-□□□□	842	506	560	8	2	400	180
LEJB40V□□-600□-□□□□	942	606	660	10	3	600	80
LEJB40V□□-700□-□□□□	1042	706	760	10	3	600	180
LEJB40V□□-800□-□□□□	1142	806	860	12	4	800	80
LEJB40V□□-900□-□□□□	1242	906	960	12	4	800	180
LEJB40V□□-1000□-□□□□	1342	1006	1060	14	5	1000	80
LEJB40V□□-1200□-□□□□	1542	1206	1260	16	6	1200	80
LEJB40V□□-1500□-□□□□	1842	1506	1560	18	7	1400	180
LEJB40V□□-2000□-□□□□	2342	2006	2060	24	10	2000	80

Dimensions: Belt Drive

LEJB63



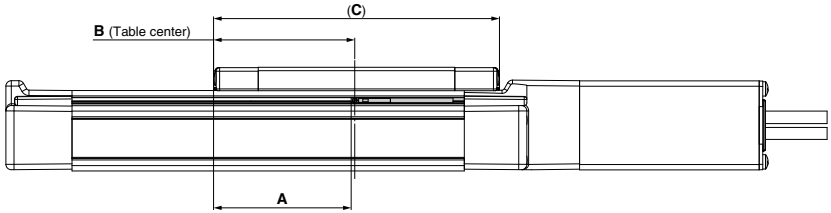
Note 1) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.
Note 2) The Z-phase first detecting position from the stroke end of the motor side
Note 3) Auto switch magnet is located in the table center.

[mm]

Model	L	A	B	n	C	D	E
LEJB63V□□-300□-□□□□	704	306	370	6	1	200	180
LEJB63V□□-400□-□□□□	804	406	470	8	2	400	80
LEJB63V□□-500□-□□□□	904	506	570	8	2	400	180
LEJB63V□□-600□-□□□□	1004	606	670	10	3	600	80
LEJB63V□□-700□-□□□□	1104	706	770	10	3	600	180
LEJB63V□□-800□-□□□□	1204	806	870	12	4	800	80
LEJB63V□□-900□-□□□□	1304	906	970	12	4	800	180
LEJB63V□□-1000□-□□□□	1404	1006	1070	14	5	1000	80
LEJB63V□□-1200□-□□□□	1604	1206	1270	16	6	1200	80
LEJB63V□□-1500□-□□□□	1904	1506	1570	18	7	1400	180
LEJB63V□□-2000□-□□□□	2404	2006	2070	24	10	2000	80
LEJB63V□□-3000□-□□□□	3404	3006	3070	34	15	3000	80

Auto Switch Mounting

Auto Switch Mounting Position



[mm]

Model	Size	A	B	C	Operating range
LEJS	40	77	80	160	5.5
LEJB					5.0
LEJS	63	83	86	172	7.0
LEJB					6.5

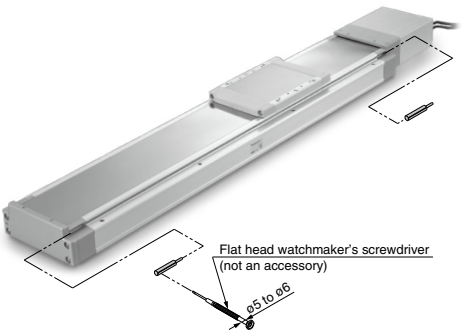
Note) The operating range is a guideline including hysteresis, not meant to be guaranteed. There may be large variations (as much as ±30%) depending on the ambient environment.

Auto Switch Mounting

When mounting the auto switches, they should be inserted into the actuator's auto switches mounting groove from the direction shown in the drawing on the below. Once in the mounting position, use a flat head watchmaker's screwdriver to tighten the included auto switch mounting screw.

Auto Switch Mounting Screw Tightening Torque [N·m]

Auto switch model	Tightening torque
D-M9□(V) **D-M9□W(V)**	0.10 to 0.15



Note) When tightening the auto switch mounting screw, use a watchmaker's screwdriver with a handle diameter of about 5 to 6 mm.

Solid State Auto Switch
Direct Mounting Type
D-M9N(V)/D-M9P(V)/D-M9B(V)

RoHS

Refer to SMC website for the details of the products conforming to the international standards.

Grommet

- **2-wire load current is reduced (2.5 to 40 mA).**
- **Using flexible cable as standard spec.**

Auto Switch Specifications

PLC: Programmable Logic Controller

D-M9□, D-M9□V (With indicator light)						
Auto switch model	D-M9N	D-M9NV	D-M9P	D-M9PV	D-M9B	D-M9BV
Electrical entry direction	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring type	3-wire				2-wire	
Output type	NPN		PNP		—	
Applicable load	IC circuit, Relay, PLC				24 VDC relay, PLC	
Power supply voltage	5, 12, 24 VDC (4.5 to 28 V)				—	
Current consumption	10 mA or less				—	
Load voltage	28 VDC or less		—		24 VDC (10 to 28 VDC)	
Load current	40 mA or less				2.5 to 40 mA	
Internal voltage drop	0.8 V or less at 10 mA (2 V or less at 40 mA)				4 V or less	
Leakage current	100 μA or less at 24 VDC				0.8 mA or less	
Indicator light	Red LED illuminates when turned ON.					
Standard	CE marking, RoHS					

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-M9N(V)	D-M9P(V)	D-M9B(V)
Sheath	Outside diameter [mm]	2.6		
Insulator	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
	Outside diameter [mm]	0.88		
Conductor	Effective area [mm²]	0.15		
	Strand diameter [mm]	0.05		
Minimum bending radius [mm] (Reference values)		17		

Note 1) Refer to Best Pneumatics No. 2-1 for solid state auto switch common specifications.
Note 2) Refer to Best Pneumatics No. 2-1 for lead wire lengths.

Weight

(g)

Auto switch model		D-M9N(V)	D-M9P(V)	D-M9B(V)
Lead wire length	0.5 m (**Nil**)	8		7
	1 m (**M**)	14		13
	3 m (**L**)	41		38
	5 m (**Z**)	68		63

⚠Caution

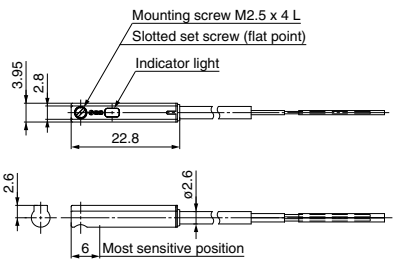
Precautions

Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.

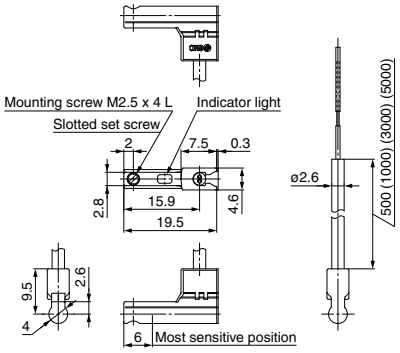
Dimensions

(mm)

D-M9□



D-M9□V



2-Color Indicator Solid State Auto Switch Direct Mounting Type
D-M9NW(V)/D-M9PW(V)/D-M9BW(V)

RoHS

Refer to SMC website for the details of the products conforming to the international standards.

Grommet

- **2-wire load current is reduced (2.5 to 40 mA).**
- **Using flexible cable as standard spec.**
- **The proper operating range can be determined by the color of the light. (Red → Green ← Red)**

⚠Caution

Precautions

Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-M9□W, D-M9□WV (With indicator light)						
Auto switch model	D-M9NW	D-M9NWV	D-M9PW	D-M9PWV	D-M9BW	D-M9BWV
Electrical entry direction	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring type	3-wire				2-wire	
Output type	NPN		PNP		—	
Applicable load	IC circuit, Relay, PLC				24 VDC relay, PLC	
Power supply voltage	5, 12, 24 VDC (4.5 to 28 V)				—	
Current consumption	10 mA or less				—	
Load voltage	28 VDC or less		—		24 VDC (10 to 28 VDC)	
Load current	40 mA or less				2.5 to 40 mA	
Internal voltage drop	0.8 V or less at 10 mA (2 V or less at 40 mA)				4 V or less	
Leakage current	100 μA or less at 24 VDC				0.8 mA or less	
Indicator light	Operating range ····· Red LED illuminates. Proper operating range ····· Green LED illuminates.					
Standard	CE marking, RoHS					

Oilproof Flexible Heavy-duty Lead Wire Specifications

Auto switch model		D-M9NW(V)	D-M9PW(V)	D-M9BW(V)
Sheath	Outside diameter [mm]	2.6		
Insulator	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
	Outside diameter [mm]	0.88		
Conductor	Effective area [mm²]	0.15		
	Strand diameter [mm]	0.05		
Minimum bending radius [mm] (Reference values)		17		

Note 1) Refer to Best Pneumatics No. 2-1 for solid state auto switch common specifications.
Note 2) Refer to Best Pneumatics No. 2-1 for lead wire lengths.

Weight

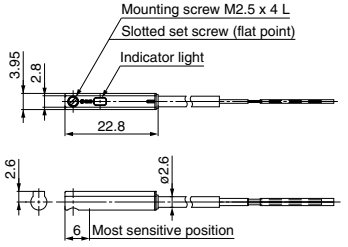
(g)

Auto switch model		D-M9NW(V)	D-M9PW(V)	D-M9BW(V)
Lead wire length	0.5 m (**Nil**)	8		7
	1 m (**M**)	14		13
	3 m (**L**)	41		38
	5 m (**Z**)	68		63

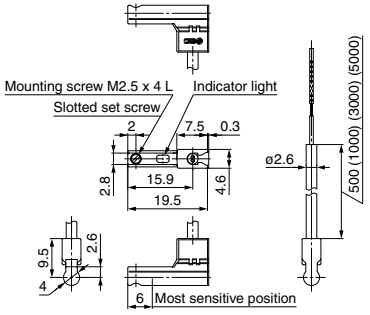
Dimensions

(mm)

D-M9□W



D-M9□WV



SMC

Electric Actuator/ Specific Product Precautions 1

Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 8 for Electric Actuator Precautions.

Design

⚠Caution

1. Do not apply a load in excess of the specification limits.

Select a suitable actuator by work load and allowable moment. If the product is used outside of the specification limits, the eccentric load applied to the guide will be excessive and have adverse effects such as creating play on the guide, degrading accuracy and shortening the life of the product.

2. Do not use the product in applications where excessive external force or impact force is applied to it.

The product can be damaged.

The components including the motor are manufactured to precise tolerances. So that even a slight deformation may cause a malfunction or seizure.

Selection

⚠Warning

1. Do not increase the speed in excess of the specification limits.

Select a suitable actuator by the relationship of the allowable work load and speed, and the allowable speed of each stroke. If the product is used outside of the specification limits, it will have adverse effects such as creating noise, degrading accuracy and shortening the life of the product.

2. When the product repeatedly cycles with partial strokes (100 mm or less), lubrication can run out. Operate it at a full stroke at least once a day or every a thousand cycles.

3. When external force is applied to the table, it is necessary to add external force to the work load as the total carried load for the sizing.

When a cable duct or flexible moving tube is attached to the actuator, the sliding resistance of the table increases and may lead to operational failure of the product.

Handling

⚠Caution

1. Do not allow the table to hit the end of stroke.

When incorrect instructions are inputted, such as using the product outside of the specification limits or operation outside of actual stroke through changes in the controller/driver setting and/or origin position, the table may collide against the stroke end of the actuator. Check these points before use.

If the table collides against the stroke end of the actuator, the guide, belt or internal stopper can be broken. This may lead to abnormal operation.

Handle the actuator with care when it is used in the vertical direction as the workpiece will fall freely from its own weight.

2. The actual speed of this actuator is affected by the work load and stroke.

Check specifications with reference to the model selection section of the catalog.

3. Do not apply a load, impact or resistance in addition to the transferred load during return to origin.

4. Do not dent, scratch or cause other damage to the body and table mounting surfaces.

This may cause unevenness in the mounting surface, play in the guide or an increase in the sliding resistance.

5. Do not apply strong impact or an excessive moment while mounting the product or a workpiece.

If an external force over the allowable moment is applied, it may cause play in the guide or an increase in the sliding resistance.

6. Keep the flatness of mounting surface should be within 0.1 mm/500 mm.

Unevenness of a workpiece or base mounted on the body of the product may cause play in the guide and an increase in the sliding resistance.

In the case of overhang mounting (including cantilever), to avoid deflection of the actuator body, use a support plate or support guide.

7. When mounting the actuator, use all mounting holes.

If all mounting holes are not used, it influences the specifications, e.g., the amount of displacement of the table increases.

8. Do not hit the table with the workpiece in the positioning operation and positioning range.

9. Do not apply external force to the dust seal band.

Particularly during the transportation.

Electric Actuator/ Specific Product Precautions 2

Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 8 for Electric Actuator Precautions.

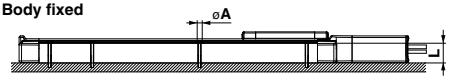
Handling

⚠Caution

10. When mounting the product, use screws with adequate length and tighten them with adequate torque.

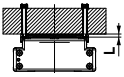
Tightening the screws with a higher torque than recommended may cause a malfunction, whilst the tightening with a lower torque can cause the displacement of the mounting position or in extreme conditions the actuator could become detached from its mounting position.

Body fixed



Model	Screw size	Max. tightening torque [N·m]	ø**A** [mm]	**L** [mm]
LEJ□40	M5	3.0	5.5	36.5
LEJ□63	M6	5.2	6.8	49.5

Workpiece fixed



Model	Screw size	Max. tightening torque [N·m]	**L** (Max. screw-in depth) [mm]
LEJ□40	M6 x 1	5.2	10
LEJ□63	M8 x 1.25	12.5	12

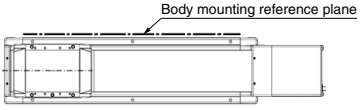
To prevent the workpiece retaining screws from touching the body, use screws that are 0.5 mm or shorter than the maximum screw-in depth. If long screws are used, they can touch the body and cause a malfunction etc.

11. Do not operate by fixing the table and moving the actuator body.

12. The belt drive actuator cannot be used vertically for applications.

13. Vibration may occur during operation, this could be caused by the operating conditions.
If it occurs, refer to the operation manuals of the driver and actuator.

14. When mounting the actuator using the body mounting reference plane, use a pin. Set the height of the pin to be 5 mm or more because of round chamfering. (Recommended height 6 mm)



Maintenance

⚠Warning

Maintenance frequency

Perform maintenance according to the table below.

Frequency	Appearance check	Internal check	Belt check
Inspection before daily operation	○	—	—
Inspection every 6 months/1000 km/ 5 million cycles*	○	○	○

* Select whichever comes first.

• Items for visual appearance check

1. Loose set screws, Abnormal dirt
2. Check of flaw and cable joint
3. Vibration, Noise

• Items for internal check

1. Lubricant condition on moving parts.
   * For lubrication, use lithium grease No. 2.
2. Loose or mechanical play in fixed parts or fixing screws.

• Items for belt check

Stop operation immediately and replace the belt when belt appear to be below. Further, ensure your operating environment and conditions satisfy the requirements specified for the product.

a. Tooth shape canvas is worn out.
Canvas fiber becomes fuzzy. Rubber is removed and the fiber becomes whitish. Lines of fibers become unclear.

b. Peeling off or wearing of the side of the belt
Belt corner becomes round and frayed thread sticks out.

c. Belt partially cut
Belt is partially cut. Foreign matter caught in teeth other than cut part causes flaw.

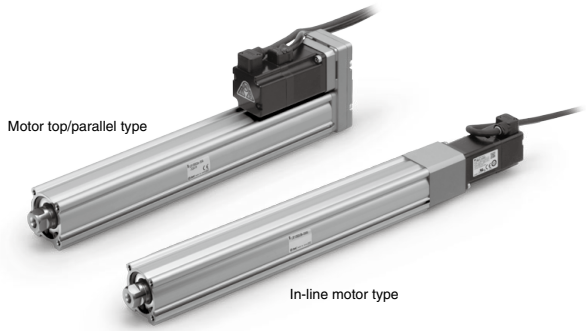
d. Vertical line of belt teeth
Flaw which is made when the belt runs on the flange.

e. Rubber back of the belt is softened and sticky.

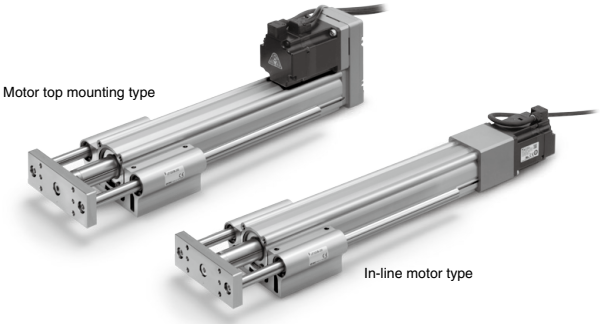
f . Crack on the back of the belt

AC Servo Motor

Rod Type *LEY Series*



Guide Rod Type *LEYG Series*



AC Servo Motor Driver *LECYM/LECYU Series*

Model Selection

Size 25, 32, 63

LEY Series ▶ Page 736

Selection Procedure

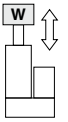
Positioning Control Selection Procedure

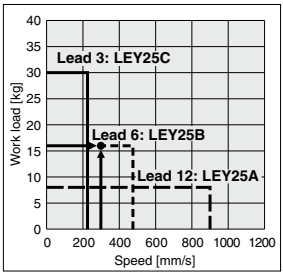
Step 1 Check the work load–speed. (Vertical transfer) → **Step 2** Check the cycle time.

Selection Example

Operating conditions

- Workpiece mass: 16 [kg]
- Speed: 300 [mm/s]
- Acceleration/Deceleration: 5000 [mm/s²]
- Stroke: 300 [mm]
- Workpiece mounting condition: Vertical upward / downward transfer





<Speed–Vertical work load graph> (LEY25)

Step 1 **Check the work load–speed. <Speed–Vertical work load graph>**

Select the target model based on the workpiece mass and speed with reference to the <Speed–Vertical work load graph>.

Selection example) The **LEY25B** is temporarily selected based on the graph shown on the right side.

* It is necessary to mount a guide outside the actuator when used for horizontal transfer. When selecting the target model, refer to the horizontal work load in the specifications on pages 738 and 739 and the precautions.

The regenerative resistor may be necessary. Refer to pages 732 and 733 for "Conditions for Regenerative Resistor (Guide)".

Step 2 **Check the cycle time.**

Calculate the cycle time using the following calculation method.

- Cycle time T can be found from the following equation.

$$T = T1 + T2 + T3 + T4 \text{ [s]}$$

- T1: Acceleration time and T3: Deceleration time can be obtained by the following equation.

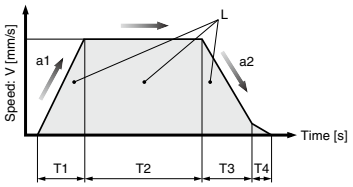
$$T1 = V/a1 \text{ [s]} \qquad T3 = V/a2 \text{ [s]}$$

- T2: Constant speed time can be found from the following equation.

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} \text{ [s]}$$

- T4: Settling time varies depending on the motor type and load. The value below is recommended.

$$T4 = 0.05 \text{ [s]}$$



L : Stroke [mm] ··· (Operating condition)
V : Speed [mm/s] ··· (Operating condition)
a1: Acceleration [mm/s²] ··· (Operating condition)
a2: Deceleration [mm/s²] ··· (Operating condition)

T1: Acceleration time [s] ··· Time until reaching the set speed
T2: Constant speed time [s] ··· Time while the actuator is operating at a constant speed
T3: Deceleration time [s] ··· Time from the beginning of the constant speed operation to stop
T4: Settling time [s] ··· Time until positioning is completed

Calculation example)
T1 to T4 can be calculated as follows.

$T1 = V/a1 = 300/5000 = 0.06$ [s], $T3 = V/a2 = 300/5000 = 0.06$ [s]

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{300 - 0.5 \cdot 300 \cdot (0.06 + 0.06)}{300} = 0.94 \text{ [s]}$$

$T4 = 0.05$ [s]

Therefore, the cycle time can be obtained as follows.
$T = T1 + T2 + T3 + T4 = 0.06 + 0.94 + 0.06 + 0.05 =$ **1.11 [s]**

Based on the above calculation result, the LEY25B-300 is selected.

Selection Procedure

Pushing Control Selection Procedure

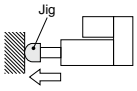
Step 1 Check the duty ratio. → **Step 2** Check the pushing force. → **Step 3** Check the lateral load on the rod end.

∗ The duty ratio is a ratio at the time that can keep being pushed.

Selection Example

Operating conditions

- Mounting condition: Horizontal (pushing)
- Duty ratio: 60 [%]
- Jig weight: 0.5 [kg]
- Pushing speed: 35 [mm/s]
- Pushing force: 255 [N]
- Stroke: 300 [mm]



Step 1 **Check the duty ratio.**

<Conversion table of pushing force–duty ratio>

Select the [Pushing force] from the duty ratio with reference to the <Conversion table of pushing force–duty ratio>.

Selection example)
Based on the table below,
- Duty ratio: 60 [%]

Therefore, the set value of pushing force will be 90 [%].

<Conversion table of pushing force–duty ratio>
(LEY25/AC Servo motor)

Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
75 or less	100	—
90	60	1.5

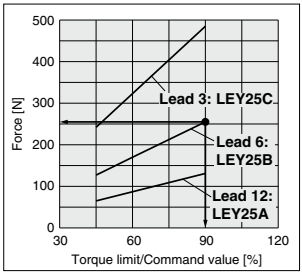
∗ [Set value of pushing force] is one of the data input to the driver.
∗ [Continuous pushing time] is the time that the actuator can continuously keep pushing.

Step 2 **Check the pushing force. <Force conversion graph>**

Select the target model based on the torque limit/command value and pushing force with reference to the <Force conversion graph>.

Selection example)
Based on the graph shown on the right side,
- Torque limit/Command value: 90 [%]
- Pushing force: 255 [N]

Therefore, the **LEY25B** is temporarily selected.



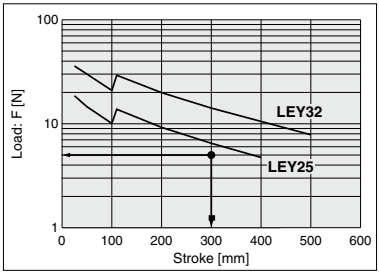
<Force conversion graph>
(LEY25)

Step 3 **Check the lateral load on the rod end.**
<Graph of allowable lateral load on the rod end>

Confirm the allowable lateral load on the rod end of the actuator: LEY25B, which has been selected temporarily with reference to the <Graph of allowable lateral load on the rod end>.

Selection example)
Based on the graph shown on the right side,
- Jig weight: 0.5 [kg] ≈ 5 [N]
- Product stroke: 300 [mm]

Therefore, the lateral load on the rod end is in the allowable range.



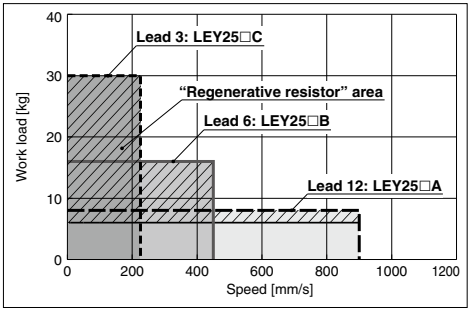
<Graph of allowable lateral load on the rod end>

Based on the above calculation result, the LEY25B-300 is selected.

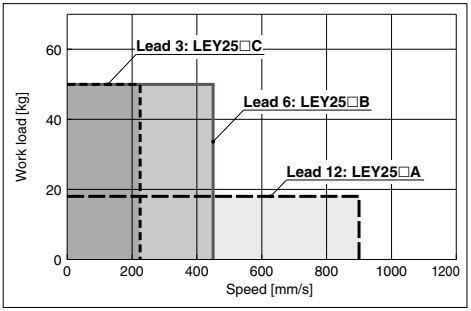
Speed–Work Load Graph/Conditions for "Regenerative Resistor" (Guide)

LEY25□V6 (Motor mounting position: Top/Parallel, In-line)

Vertical

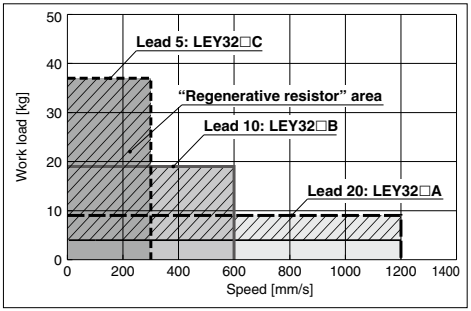


Horizontal

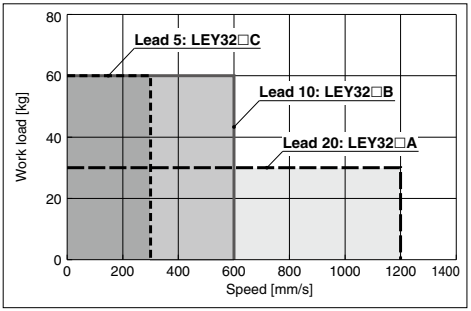


LEY32□V7 (Motor mounting position: Top/Parallel)

Vertical

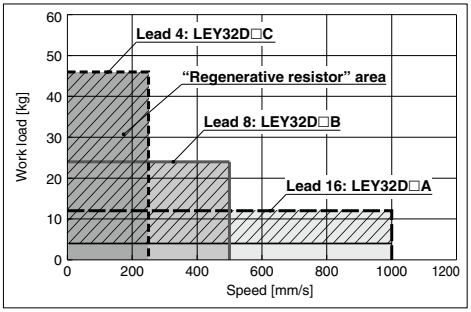


Horizontal

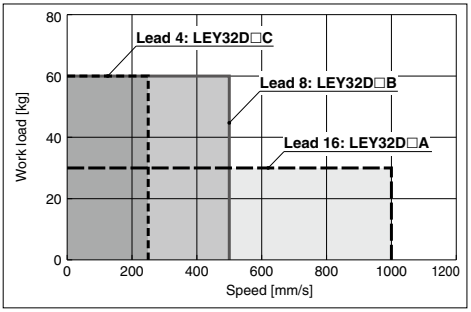


LEY32DV7 (Motor mounting position: In-line)

Vertical



Horizontal



"Regenerative resistor" area

∗ When using the actuator in the "Regenerative resistor" area, download the "AC servo capacity selection program/SigmaJunmaSize+" from the SMC website. Then, calculate the necessary regenerative resistor capacity to prepare an appropriate external regenerative resistor.
∗ Regenerative resistor should be provided by the customer.

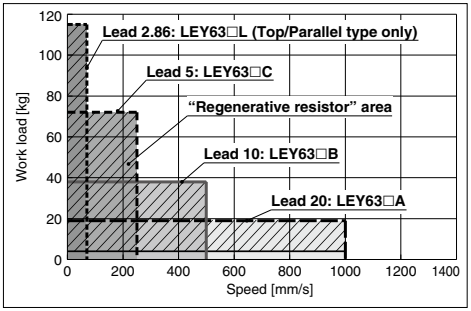
Applicable Motor/Driver

Model	Applicable model	
	Motor	Servopack (SMC driver)
LEY25□	SGMJV-01A3A	SGDV-R90A11□ (LECYM2-V5) SGDV-R90A21□ (LECYU2-V5)
LEY32□	SGMJV-02A3A	SGDV-1R6A11□ (LECYM2-V7) SGDV-1R6A21□ (LECYU2-V7)

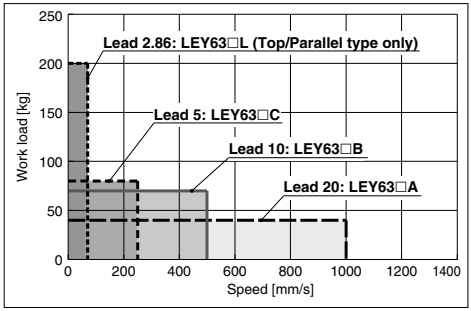
Speed–Work Load Graph/Conditions for "Regenerative Resistor" (Guide)

LEY63□V8 (Motor mounting position: Top/Parallel, In-line)

Vertical



Horizontal



"Regenerative resistor" area

* When using the actuator in the "Regenerative resistor" area, download the "AC servo capacity selection program/SigmaJunmaSize+" from the SMC website. Then, calculate the necessary regenerative resistor capacity to prepare an appropriate external regenerative resistor.
* Regenerative resistor should be provided by the customer.

Applicable Motor/Driver

Product no.	Applicable model	
	Motor	Servopack (SMC driver)
LEY63□	SGMJV-04A3A	SGDV-2R8A11□ (LECYM2-V8) SGDV-2R8A21□ (LECYU2-V8)

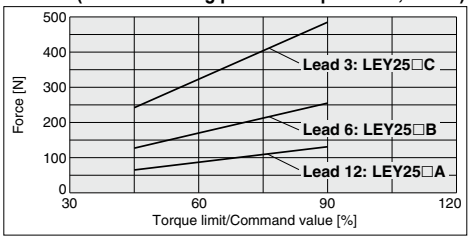
Allowable Stroke Speed

[mm/s]

Model	AC servo motor	Lead		Stroke [mm]												
		Symbol	[mm]	Up to 30	Up to 50	Up to 100	Up to 150	Up to 200	Up to 250	Up to 300	Up to 350	Up to 400	Up to 450	Up to 500	Up to 600	Up to 700	Up to 800
LEY25□ (Motor mounting position: Top/Parallel, In-line)	100 W /□40	**A**	12	900							600		—	—	—	—	—
		B	6	450							300		—	—	—	—	—
		C	3	225							150		—	—	—	—	—
		(Motor rotation speed)		(4500 rpm)							(3000 rpm)		—	—	—	—	—
LEY32□ (Motor mounting position: Top/Parallel)	200 W /□60	**A**	20	1200									800		—	—	—
		B	10	600									400		—	—	—
		C	5	300									200		—	—	—
		(Motor rotation speed)		(3600 rpm)									(2400 rpm)		—	—	—
LEY32D (Motor mounting position: In-line)	200 W /□60	**A**	16	1000									640		—	—	—
		B	8	500									320		—	—	—
		C	4	250									160		—	—	—
		(Motor rotation speed)		(3750 rpm)									(2400 rpm)		—	—	—
LEY63□ (Motor mounting position: Top/Parallel, In-line)	400 W /□60	**A**	20	—	1000										800	600	500
		B	10	—	500										400	300	250
		C	5	—	250										200	150	125
		(Motor rotation speed)		—	(3000 rpm)										(2400 rpm)	(1800 rpm)	(1500 rpm)
		L	2.86	—	70												
		(Motor rotation speed)		—	(1470 rpm)												

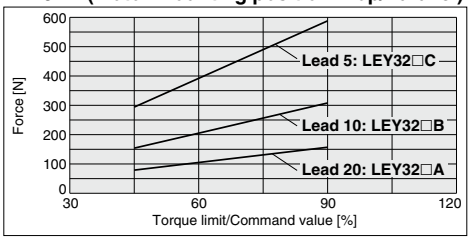
Force Conversion Graph (Guide)

LEY25□ (Motor mounting position: Top/Parallel, In-line)



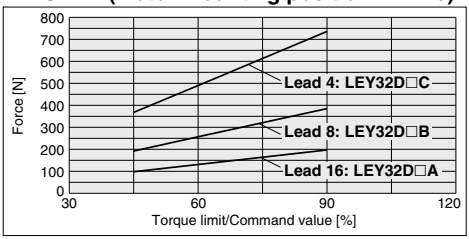
Torque limit/Command value [%]	Duty ratio [%]	Continuous pushing time [minute]
75 or less	100	—
90	60	1.5

LEY32□ (Motor mounting position: Top/Parallel)



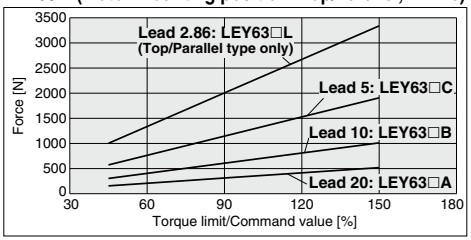
Torque limit/Command value [%]	Duty ratio [%]	Continuous pushing time [minute]
75 or less	100	—
90	60	1.5

LEY32D□ (Motor mounting position: In-line)



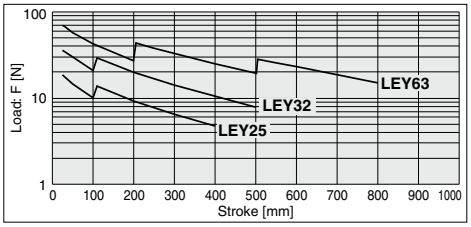
Torque limit/Command value [%]	Duty ratio [%]	Continuous pushing time [minute]
75 or less	100	—
90	60	1.5

LEY63□ (Motor mounting position: Top/Parallel, In-line)

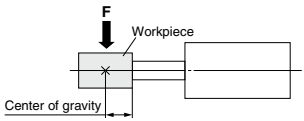


Torque limit/Command value [%]	Duty ratio [%]	Continuous pushing time [minute]
75 or less	100	—
90	60	1.5
120	30	0.5
150	20	0.16

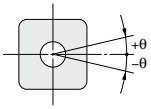
Graph of Allowable Lateral Load on the Rod End (Guide)



[Stroke] = [Product stroke] + [Distance from the rod end to the center of gravity of the workpiece]

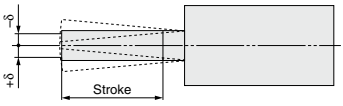


Non-rotating Accuracy: θ



Size	Non-rotating accuracy θ
25	±0.8°
32	±0.7°
63	±0.6°

Rod Displacement: δ



[mm]

Size	Stroke [mm]													
	30	**50**	**100**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**	**600**	**700**	**800**
25	±0.3	±0.4	±0.7	±0.7	±0.9	±1.1	±1.3	±1.5	±1.7	—	—	—	—	—
32	±0.3	±0.4	±0.7	±0.6	±0.8	±1.0	±1.1	±1.3	±1.5	±1.7	±1.8	—	—	—
63	—	—	±1.0	—	±1.7	—	±1.3	—	±1.7	—	±2.1	±1.7	±2.0	±2.2

AC Servo Motor

Electric Actuator/ Rod Type

LEY Series LEY25, 32, 63

CE RoHS

Please contact SMC for dust-tight/water-jet-proof (IP65 equivalent) and the models compatible with secondary batteries.

How to Order

LEY **H** **25** **□** **V6** **B** – **200** **□** **□** **□** **□** – **S** **3** **M2** **□**

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬ ⓭ ⓮

❶ Accuracy

Nil	Basic type
H	High precision type

❷ Size

25
32
63

❸ Motor mounting position

Nil	Top mounting
R	Right side parallel
L	Left side parallel
D	In-line

❹ Motor type

Symbol	Type	Output [W]	Size	Compatible driver
V6	AC servo motor (Absolute encoder)	100	25	LECYM2-V5 LECYU2-V5
V7		200	32	LECYM2-V7 LECYU2-V7
V8		400	63	LECYM2-V8 LECYU2-V8

❺ Lead [mm]

Symbol	LEY25	LEY32 *1	LEY63
A	12	16 (20)	20
B	6	8 (10)	10
C	3	4 (5)	5
L	—	—	2.86 *2

*1 The values shown in ( ) are the lead for top mounting, right/left side parallel types. (Equivalent lead which includes the pulley ratio [1.25:1])

*2 Only available for top mounting and right/left side parallel types. (Equivalent lead which includes the pulley ratio [4:7])

❻ Stroke [mm]

30	30
to	to
800	800

* Refer to the applicable stroke table.

❼ Dust-tight/Water-jet-proof (Only available for LEY63)

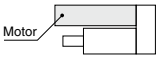
Symbol	LEY25/32	LEY63
Nil	IP4x equivalent	IP5x equivalent (Dust-protected)
P	—	IP65 equivalent (Dust-tight/ Water-jet-proof)/With vent hole tap

* When using the dust-tight/water-jet-proof (IP65 equivalent), correctly mount the fitting and tubing to the vent hole tap, and then place the end of the tubing in an area not exposed to dust or water.
* The fitting and tubing should be provided separately by the customer. Select [Applicable tubing O.D.: ø4 or more, Connection thread: Rc1/8].
* Cannot be used in environments exposed to cutting oil etc. Take suitable protective measures. For details about enclosure, refer to "Enclosure" on page 306.

❽ Motor option

Nil	Without option
B	With lock

* When "With lock" is selected for the top mounting and right/left side parallel types, the motor body will stick out of the end of the body for size 25 with strokes 30 mm or less. Check for interference with workpieces before selecting a model.



❾ Rod end thread

Nil	Rod end female thread
M	Rod end male thread (1 rod end nut is included.)

Applicable Stroke Table

●: Standard

Model \ Stroke [mm]	30	50	100	150	200	250	300	350	400	450	500	600	700	800	Manufacturable stroke range
LEY25	●	●	●	●	●	●	●	●	●	—	—	—	—	—	15 to 400
LEY32	●	●	●	●	●	●	●	●	●	●	●	—	—	—	20 to 500
LEY63	—	—	●	—	●	—	●	—	●	—	●	●	●	●	50 to 800

* Please consult with SMC for non-standard strokes as they are produced as special orders.

For auto switches, refer to pages 759 and 760.

Motor mounting position: Top/Parallel

Motor mounting position: In-line

⑩ Mounting *1

Symbol	Type	Motor mounting position	
		Top/Parallel	In-line
Nil	Ends tapped/ Body bottom tapped *2	●	●
L	Foot	●	—
F	Rod flange *2	● *4	●
G	Head flange *2	● *5	—
D	Double clevis *3	●	—

*1 Mounting bracket is shipped together, (but not assembled).
*2 For horizontal cantilever mounting with the ends tapped and rod/head flange, use the actuator within the following stroke range.
· LEY25: 200 mm or less · LEY32: 100 mm or less · LEY63: 400 mm or less
*3 For mounting with the double clevis, use the actuator within the following stroke range.
· LEY25: 200 mm or less · LEY32: 200 mm or less · LEY63: 300 mm or less
*4 Rod flange is not available for the LEY25 with strokes 30 mm and motor option "With lock".
*5 Head flange is not available for the LEY32/LEY63.

⑪ Cable type

Nil	Without cable
S	Standard cable
R	Robotic cable (Flexible cable)

⑫ Cable length [m]

Nil	Without cable
3	3
5	5
A	10
C	20

⑬ Driver type

	Compatible driver	Power supply voltage [V]
Nil	Without driver	—
M2	LECYM2-V□	200 to 230
U2	LECYU2-V□	200 to 230

* When the driver type is selected, the cable is included. Select cable type and cable length.

⑭ I/O cable length [m] *

Nil	Without cable
H	Without cable (Connector only)
1	1.5

* When "Without driver" is selected for driver type, only "Nil: Without cable" can be selected. Refer to page 773 if I/O cable is required. (Options are shown on page 773.)

Compatible Driver

Driver type	MECHATROLINK-Ⅱ type 	MECHATROLINK-Ⅲ type 
Series	**LECYM**	**LECYU**
Applicable network	MECHATROLINK-Ⅱ	MECHATROLINK-Ⅲ
Control encoder	Absolute 20-bit encoder	
Communication device	USB communication, RS-422 communication	
Power supply voltage [V]	200 to 230 VAC (50/60 Hz)	
Reference page	Page 766	

Specifications

Model			LEY25 (Top/Parallel)/LEY25D (In-line)			LEY32 (Top/Parallel)			LEY32D (In-line)		
Actuator specifications	Stroke [mm] Note 1)		30, 50, 100, 150, 200, 250, 300, 350, 400			30, 50, 100, 150, 200, 250, 300, 350, 400, 450, 500			30, 50, 100, 150, 200, 250, 300, 350, 400, 450, 500		
	Work load [kg]	Horizontal Note 2)	18	50	50	30	60	60	30	60	60
		Vertical	8	16	30	9	19	37	12	24	46
	Force [N] Note 3) (Set value: 45 to 90%)		65 to 131	127 to 255	242 to 485	79 to 157	154 to 308	294 to 588	98 to 197	192 to 385	368 to 736
	Max. speed [mm/s] Note 4)	Stroke range: Up to 300	900	450	225	1200	600	300	1000	500	250
		Stroke range: 305 to 400	600	300	150						
		Stroke range: 405 to 500	—	—	—	800	400	200	640	320	160
	Pushing speed [mm/s] Note 5)		35 or less			30 or less			30 or less		
	Max. acceleration/deceleration [mm/s²]		5000			5000					
	Positioning repeatability [mm]	Basic type	±0.02			±0.02					
		High precision type	±0.01			±0.01					
	Lost motion Note 6) [mm]	Basic type	0.1 or less			0.1 or less					
		High precision type	0.05 or less			0.05 or less					
	Lead [mm] (including pulley ratio)		12	6	3	20	10	5	16	8	4
	Impact/Vibration resistance [m/s²] Note 7)		50/20			50/20					
	Actuation type		Ball screw + Belt (LEY□)/Ball screw (LEY□D)			Ball screw + Belt [1.25:1]			Ball screw		
	Guide type		Sliding bushing (Piston rod)			Sliding bushing (Piston rod)					
	Operating temperature range [°C]		5 to 40			5 to 40					
	Operating humidity range [%RH]		90 or less (No condensation)			90 or less (No condensation)					
	Conditions for "Regenerative resistor" [kg] Note 8)	Horizontal	Not required			Not required					
		Vertical	6 or more			4 or more					
Electric specifications	Motor output/Size		100 W/□40			200 W/□60					
	Motor type		AC servo motor (200 VAC)			AC servo motor (200 VAC)					
	Encoder		Absolute 20-bit encoder (Resolution: 1048576 p/rev)								
	Power consumption [W] Note 9)	Horizontal	45			65			65		
		Vertical	145			175			175		
	Standby power consumption when operating [W] Note 10)	Horizontal	2			2			2		
		Vertical	8			8			8		
	Max. instantaneous power consumption [W] Note 11)		445			724			724		
Lock unit specifications	Type Note 12)		Non-magnetizing lock								
	Holding force [N]		131	255	485	157	308	588	197	385	736
	Power consumption [W] at 20°C Note 13)		5.5			6			6		
	Rated voltage [V]		24 VDC $^{0}_{-10\%}$								

Note 1) Please consult with SMC for non-standard strokes as they are produced as special orders.

Note 2) The maximum value of the horizontal work load. An external guide is necessary to support the load. The actual work load changes according to the condition of the external guide. Please confirm using actual device.

Note 3) The force setting range (set values for the driver) for the force control with the torque control mode. Set it with reference to "Force Conversion Graph (Guide)" on page 734.

Note 4) The allowable speed changes according to the stroke.

Note 5) The allowable collision speed for collision with the workpiece with the torque control mode.

Note 6) A reference value for correcting an error in reciprocal operation.

Note 7) Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. Test was performed in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)

Note 8) The work load conditions which require "Regenerative resistor" when operating at the maximum speed (Duty ratio: 100%). Order the regenerative resistor separately. For details, refer to "Conditions for Regenerative Resistor (Guide)" on pages 732 and 733.

Note 9) The power consumption (including the driver) is for when the actuator is operating.

Note 10) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.

Note 11) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.

Note 12) Only when motor option "With lock" is selected.

Note 13) For an actuator with lock, add the power consumption for the lock.

Weight

Product Weight

[kg]

Series	LEY25□ (Motor mounting position: Top/Parallel)									LEY32□ (Motor mounting position: Top/Parallel)									
Stroke [mm]	30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Weight [kg]	1.2	1.3	1.6	1.7	1.9	2.1	2.2	2.4	2.6	2.3	2.4	2.7	3.2	3.5	3.8	4.0	4.3	4.6	4.9	5.2

Series	LEY25D□ (Motor mounting position: In-line)									LEY32D□ (Motor mounting position: In-line)									
Stroke [mm]	30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Weight [kg]	1.2	1.3	1.5	1.7	1.9	2.1	2.3	2.4	2.6	2.3	2.4	2.7	3.2	3.5	3.8	4.1	4.3	4.6	4.9	5.2

Additional Weight

[kg]

Size		25	32
Lock		0.30	0.60
Rod end male thread	Male thread	0.03	0.03
	Nut	0.02	0.02
Foot (2 sets including mounting bolt)		0.08	0.14
Rod flange (including mounting bolt)		0.17	0.20
Head flange (including mounting bolt)			
Double clevis (including pin, retaining ring and mounting bolt)		0.16	0.22

Specifications

Model			LEY63□ (Top/Parallel)				LEY63D□ (In-line)		
Actuator specifications	Stroke [mm] Note 1)		100, 200, 300, 400, 500, 600, 700, 800						
	Work load [kg]	Horizontal Note 2)	40	70	80	200	40	70	80
		Vertical	19	38	72	115	19	38	72
	Force [N]/Set value Note 3) : 45 to 150% Note 4)		156 to 521	304 to 1012	573 to 1910	1003 to 3343	156 to 521	304 to 1012	573 to 1910
	Max. speed Note 5) [mm/s]	Stroke range: Up to 500	1000	500	250	70	1000	500	250
		Stroke range: 505 to 600	800	400	200		800	400	200
		Stroke range: 605 to 700	600	300	150		600	300	150
		Stroke range: 705 to 800	500	250	125		500	250	125
	Pushing speed [mm/s] Note 6)		30 or less						
	Max. acceleration/deceleration [mm/s²]		5000			3000	5000		
	Positioning repeatability [mm]	Basic type	±0.02						
		High precision type	±0.01						
	Lost motion [mm] Note 7)	Basic type	0.1 or less						
		High precision type	0.05 or less						
	Screw lead [mm] (including pulley ratio)		20	10	5	5 (2.86)	20	10	5
	Impact/Vibration resistance [m/s²] Note 8)		50/20						
	Actuation type		Ball screw			Ball screw + Belt (Pulley ratio 4:7)	Ball screw		
	Guide type		Sliding bushing (Piston rod)						
	Operating temperature range [°C]		5 to 40						
	Operating humidity range [%RH]		90 or less (No condensation)						
	Conditions for "Regenerative resistor" [kg] Note 9)	Horizontal	Not required						
		Vertical	2.5 or more						
Electric specifications	Motor output/Size		400 W/□60						
	Motor type		AC servo motor (200 VAC)						
	Encoder		Absolute 20-bit encoder (Resolution: 1048576 p/rev)						
	Power consumption [W] Note 10)	Horizontal	210						
		Vertical	230						
	Standby power consumption when operating [W] Note 11)	Horizontal	2						
		Vertical	18						
	Max. instantaneous power consumption [W] Note 12)		1275						
Lock unit specifications	Type Note 13)		Non-magnetizing lock						
	Holding force [N]		313	607	1146	2006	313	607	1146
	Power consumption [W] at 20°C Note 14)		6						
	Rated voltage [V]		24 VDC $^{+10\%}_{-10\%}$						

Note 1) Please consult with SMC for non-standard strokes as they are produced as special orders.
Note 2) The maximum value of the horizontal work load. An external guide is necessary to support the load. The actual work load changes according to the condition of the external guide. Please confirm using actual device.
Note 3) Set values for the driver.
Note 4) The force setting range (set values for the driver) for the force control with the torque control mode. The force and duty ratio change according to the set value. Set it with reference to "Force Conversion Graph (Guide)" on page 734.
Note 5) The allowable speed changes according to the stroke.
Note 6) The allowable collision speed for collision with the workpiece with the torque control mode.
Note 7) A reference value for correcting an error in reciprocal operation.
Note 8) Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. Test was performed in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
Note 9) The work load conditions which require "Regenerative resistor" when operating at the maximum speed (Duty ratio: 100%).
Note 10) The power consumption (including the driver) is for when the actuator is operating.
Note 11) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.
Note 12) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.
Note 13) Only when motor option "With lock" is selected.
Note 14) For an actuator with lock, add the power consumption for the lock.

Weight

Product Weight [kg]

Series	LEY63□ (Motor mounting position: Top/Parallel)							
Stroke [mm]	100	200	300	400	500	600	700	800
Weight [kg]	5.3	6.5	8.2	9.3	10.4	12.1	13.3	14.4

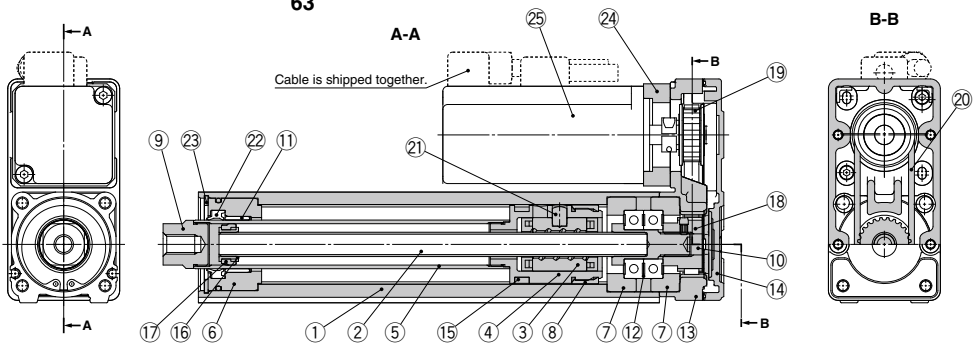
Series	LEY63D□ (Motor mounting position: In-line)							
Stroke [mm]	100	200	300	400	500	600	700	800
Weight [kg]	5.5	6.6	8.3	9.5	10.6	12.3	13.4	14.6

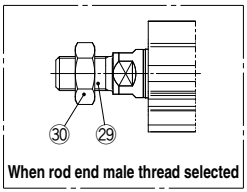
Additional Weight [kg]

Size		63
Lock		0.6
Rod end male thread	Male thread	0.12
	Nut	0.04
Foot (2 sets including mounting bolt)		0.26
Rod flange (including mounting bolt)		0.51
Double clevis (including pin, retaining ring and mounting bolt)		0.58

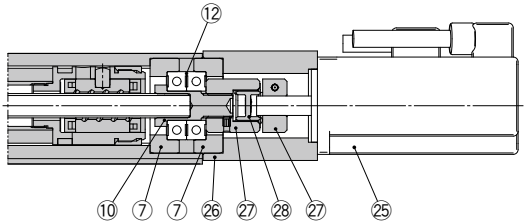
Construction

Motor top mounting type: LEY 25 / 32 / 63





In-line motor type: LEY 25 / 32D / 63



Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Ball screw shaft**	Alloy steel	
3	**Ball screw nut**	Resin/Alloy steel	
4	**Piston**	Aluminum alloy	
5	**Piston rod**	Stainless steel	Hard chrome plating
6	**Rod cover**	Aluminum alloy	
7	**Bearing holder**	Aluminum alloy	
8	**Rotation stopper**	POM	
9	**Socket**	Free cutting carbon steel	Nickel plating
10	**Connected shaft**	Free cutting carbon steel	Nickel plating
11	**Bushing**	Lead bronze cast	
12	**Bearing**	—	
13	**Return box**	Aluminum die-cast	Coating
14	**Return plate**	Aluminum die-cast	Coating
15	**Magnet**	—	
16	**Wear ring holder**	Stainless steel	Stroke 101 mm or more
17	**Wear ring**	POM	Stroke 101 mm or more
18	**Screw shaft pulley**	Aluminum alloy	

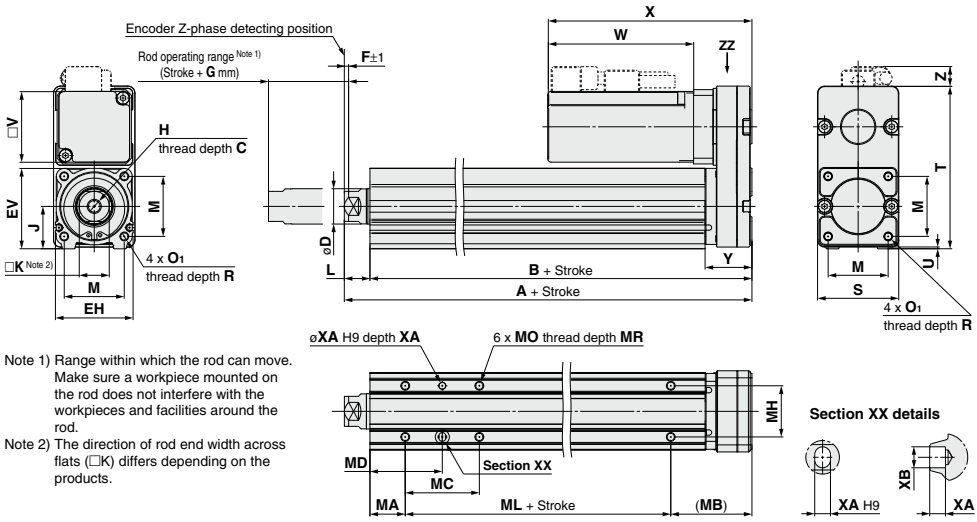
No.	Description	Material	Note
19	**Motor pulley**	Aluminum alloy	
20	**Belt**	—	
21	**Parallel pin**	Stainless steel	
22	**Seal**	NBR	
23	**Retaining ring**	Steel for spring	Phosphate coated
24	**Motor adapter**	Aluminum alloy	Coating
25	**Motor**	—	
26	**Motor block**	Aluminum alloy	Coating
27	**Hub**	Aluminum alloy	
28	**Spider**	Urethane	
29	**Socket (Male thread)**	Free cutting carbon steel	Nickel plating
30	**Nut**	Alloy steel	Zinc chromated

Replacement Parts (Top/Parallel only)/Belt

No.	Size	Order no.
20	**25**	LE-D-2-2
	32	LE-D-2-4

No.	Size	Lead	Order no.
20	**63**	A/B/C	LE-D-2-5
		L	LE-D-2-6

Dimensions: Motor Top/Parallel

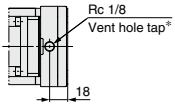


Note 1) Range within which the rod can move. Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.

Note 2) The direction of rod end width across flats (□K) differs depending on the products.

IP65 equivalent (Dust-tight/Water-jet-proof): LEY63□□□-□P

(View ZZ)



* When using the dust-tight/water-jet-proof (IP65 equivalent), correctly mount the fitting and tubing to the vent hole tap, and then place the end of the tubing in an area not exposed to dust or water. The fitting and tubing should be provided separately by the customer.
Select [Applicable tubing O.D.: ø4 or more, Connection thread: Rc1/8].

[mm]

Size	Stroke range [mm]	A	B	C	D	EH	EV	H	J	K	L	M	O1	R	S	T	U	Y	V
25	15 to 100	130.5	116	13	20	44	45.5	M8 x 1.25	24	17	14.5	34	M5 x 0.8	8	46	92	1	26.5	40
	105 to 400	155.5	141																
32	20 to 100	148.5	130	13	25	51	56.5	M8 x 1.25	31	22	18.5	40	M6 x 1.0	10	60	118	1	34	60
	105 to 500	178.5	160																
63	Up to 200	192.6	155.2	21	40	76	82	M16 x 2	44	36	37.4	60	M8 x 1.25	16	80	146	4	32.2	60
	205 to 500	227.6	190.2																
	505 to 800	262.6	225.2																

Size	Stroke range [mm]	Without lock			With lock			F	G
		W	X	Z	W	X	Z		
25	15 to 100	82.5	115.5	11	127.5	160.5	11	2	4
	105 to 400								
32	20 to 100	80	120	14	120	160	14	2	4
	105 to 500								
63	50 to 200	98.5	138.5	12.5 (13.5)*	138.5	178.5	12.5 (13.5)*	4	8
	205 to 500								
	505 to 800								

* L lead

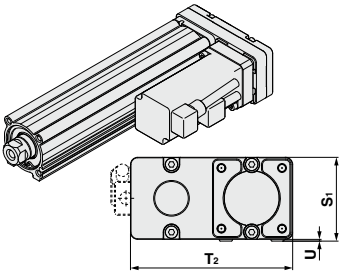
Body Bottom Tapped

[mm]

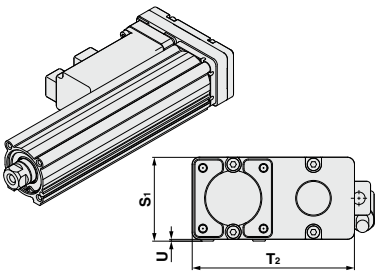
Size	Stroke range [mm]	MA	MB	MC	MD	MH	ML	MO	MR	XA	XB
25	15 to 35	20	46	24	32	29	50	M5 x 0.8	6.5	4	5
	40 to 100			42	41						
	105 to 120										
	125 to 200			59	49.5		75				
	205 to 400			76	58						
32	20 to 100	25	55	22	36	30	50	M6 x 1	8.5	5	6
	40 to 100			36	43						
	105 to 120						80				
	125 to 200			53	51.5						
	205 to 500			70	60						
63	50 to 70	38	52.2	24	50	44	65	M8 x 1.25	10	6	7
	75 to 120			45	60.5						
	125 to 200			58	67						
	205 to 500			86	81		100				
	505 to 800						135				

Dimensions: Motor Top/Parallel

Motor left side parallel type: LEY 25/32/63 L



Motor right side parallel type: LEY 25/32/63 R

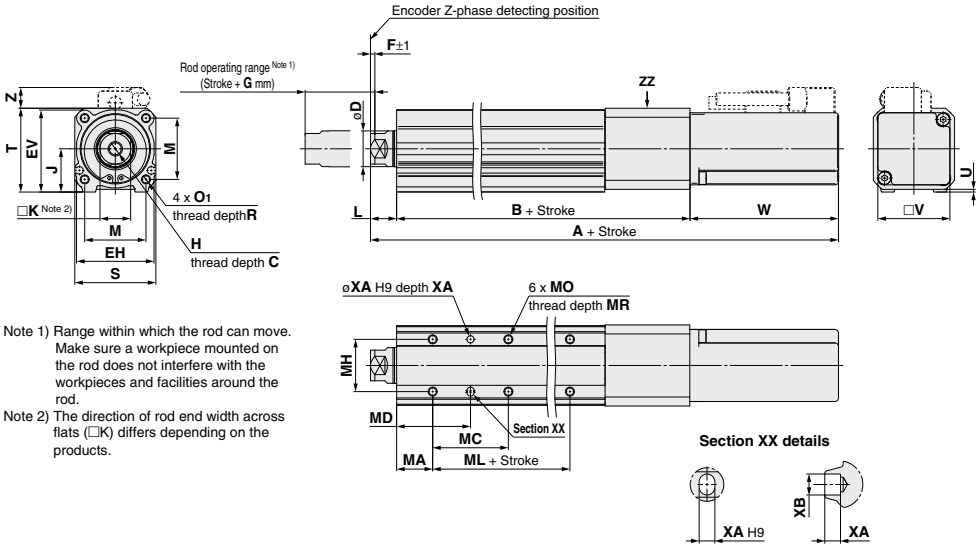


[mm]

Size	S_1	T_2	U
25	47	91	1
32	61	117	1
63	84	142	4

Note) When the motor is mounted on the left or right side in parallel, the groove for auto switch on the side to which the motor is mounted is hidden.

Dimensions: In-line Motor



Note 1) Range within which the rod can move. Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.

Note 2) The direction of rod end width across flats (□K) differs depending on the products.

[mm]

Size	Stroke range [mm]	C	D	EH	EV	H	J	K	L	M	O1	R	S	T	U	B	V
25	15 to 100	13	20	44	45.5	M8 x 1.25	24	17	14.5	34	M5 x 0.8	8	45	46.5	1.5	136.5	40
	105 to 400															161.5	
32	20 to 100	13	25	51	56.5	M8 x 1.25	31	22	18.5	40	M6 x 1.0	10	60	61	1	156	60
	105 to 500															186	
63	50 to 200	21	40	76	82	M16 x 2	44	36	37.4	60	M8 x 1.25	16	78	83	5	190.7	60
	205 to 500															225.7	
	505 to 800															260.7	

Size	Stroke range [mm]	Without lock			With lock			F	G
		A	W	Z	A	W	Z		
25	15 to 100	233.5	82.5	11.5	278.5	127.5	11.5	2	4
	105 to 400	258.5			303.5				
32	20 to 100	254.5	80	14	294.5	120	14	2	4
	105 to 500	284.5			324.5				
63	50 to 200	326.6	98.5	5	366.6	138.5	5	4	8
	205 to 500	361.6			401.6				
	505 to 800	396.6			436.6				

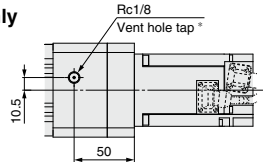
Body Bottom Tapped

[mm]

Size	Stroke range [mm]	MA	MC	MD	MH	ML	MO	MR	XA	XB
25	15 to 35	20	24	32	29	50	M5 x 0.8	6.5	4	5
	40 to 100		42	41						
	105 to 120									
	125 to 200		59	49.5		75				
	205 to 400		76	58						
32	20 to 35	25	22	36	30	50	M6 x 1	8.5	5	6
	40 to 100		36	43						
	105 to 120					80				
	125 to 200		53	51.5						
	205 to 500		70	60						
63	50 to 70	38	24	50	44	65	M8 x 1.25	10	6	7
	75 to 120		45	60.5						
	125 to 200		58	67						
	205 to 500		86	81		100				
	505 to 800					135				

IP65 equivalent (Dust-tight/Water-jet-proof): LEY63D□□-□P (View ZZ)

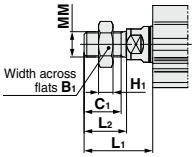
∗**LEY63 only**



∗ When using the dust-tight/water-jet-proof (IP65 equivalent), correctly mount the fitting and tubing to the vent hole tap, and then place the end of the tubing in an area not exposed to dust or water. The fitting and tubing should be provided separately by the customer.
Select [Applicable tubing O.D.: ø4 or more, Connection thread: Rc1/8].

Dimensions

End male thread: LEY 25/32/63 □□ A/B/C/L -□□M



∗ Refer to page 250 for details about the rod end nut and mounting bracket.
Note) Refer to the precautions on pages 762 and 763 when mounting end brackets such as knuckle joint or workpieces.

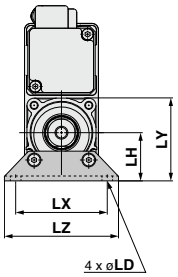
[mm]

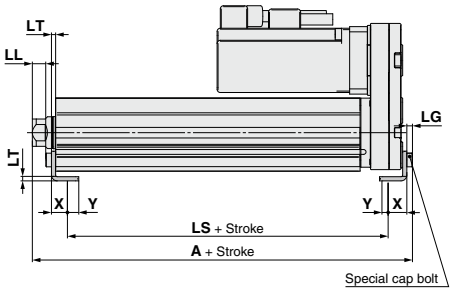
Size	B_1	C_1	H_1	L_1∗	L_2	MM
25	22	20.5	8	38	23.5	M14 x 1.5
32	22	20.5	8	42.0	23.5	M14 x 1.5
63	27	26	11	76.4	39	M18 x 1.5

∗ The L_1 measurement is when the unit is in the Z-phase first detecting position. At this position, 2 mm at the end (size 25, 32) and 4 mm at the end (size 63).

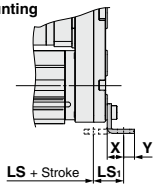
Foot: LEY 25/32/63 □□ A/B/C/L -□□□L

Included parts
·Foot
·Body mounting bolt





Outward mounting



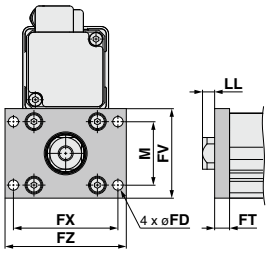
Foot [mm]

Size	Stroke range [mm]	A	LS	LS_1	LL	LD	LG	LH	LT	LX	LY	LZ	X	Y
25	15 to 100	136.6	98.8	19.8	8.4	6.6	3.5	30	2.6	57	51.5	71	11.2	5.8
	105 to 400	161.6	123.8											
32	20 to 100	155.7	114	19.2	11.3	6.6	4	36	3.2	76	61.5	90	11.2	7
	105 to 500	185.7	144											
63	50 to 200	200.8	133.2	25.2	29.2	8.6	5	50	3.2	95	88	110	14.2	8
	205 to 500	235.8	168.2											
	505 to 800	270.8	203.2											

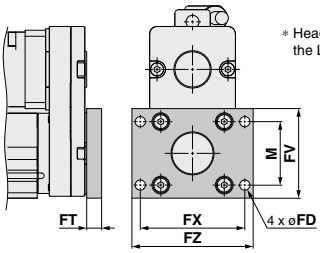
Material: Carbon steel (Chromate treated)
∗ The A measurement is when the unit is in the Z-phase first detecting position. At this position, 2 mm at the end (size 25, 32) and 4 mm at the end (size 63).
Note) When the motor mounting is the right or left side parallel type, the head side foot should be mounted outwards.

Dimensions

Rod flange: LEY 25/32/63 □□ A/B/C/L -□□□F



Head flange: LEY 25/32/63 □□ A/B/C/L -□□□G



∗ Head flange is not available for the LEY32/LEY63.

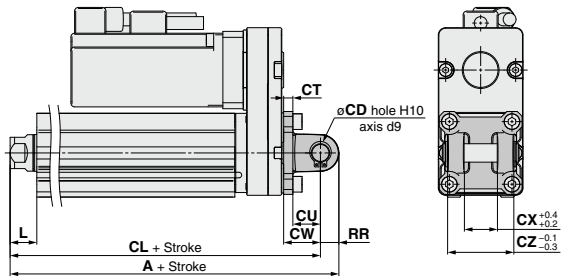
Included parts
·Flange
·Body mounting bolt

Rod/Head Flange [mm]

Size	FD	FT	FV	FX	FZ	LL	M
25	5.5	8	48	56	65	6.5	34
32	5.5	8	54	62	72	10.5	40
63	9	9	80	92	108	28.4	60

Material: Carbon steel (Nickel plating)
∗ The LL measurement is when the unit is in the Z-phase first detecting position. At this position, 2 mm at the end (size 25, 32) and 4 mm at the end (size 63).

Double clevis: LEY 25/32/63 □□ A/B/C/L -□□□D



Included parts
· Double clevis
· Body mounting bolt
· Clevis pin
· Retaining ring

∗ Refer to page 250 for details about the rod end nut and mounting bracket.

Double Clevis [mm]

Size	Stroke range [mm]	A	CL	CD	CT
25	15 to 100	160.5	150.5	10	5
	105 to 200	185.5	175.5		
32	20 to 100	180.5	170.5	10	6
	105 to 200	210.5	200.5		
63	50 to 200	236.6	222.6	14	8
	205 to 500	271.6	257.6	—	—
	505 to 800	306.6	292.6	—	—

Size	Stroke range [mm]	CU	CW	CX	CZ	L	RR
25	15 to 100	14	20	18	36	14.5	10
	105 to 200						
32	20 to 100	14	22	18	36	18.5	10
	105 to 200						
63	50 to 200	22	30	22	44	37.4	14
	205 to 500						
	505 to 800						

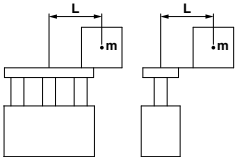
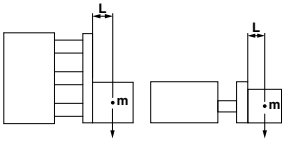
Material: Cast iron (Coating)
∗ The A and CL measurements are when the unit is in the Z-phase first detecting position. At this position, 2 mm at the end (size 25, 32) and 4 mm at the end (size 63).

Model Selection

LEYG Series ▶ Page 752

Moment Load Graph

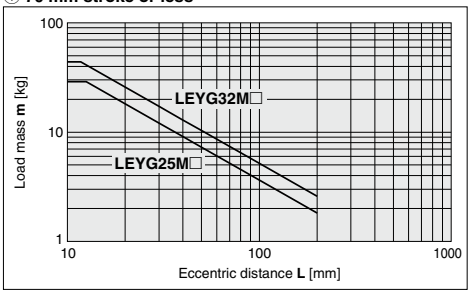
Selection conditions

	Vertical	Horizontal	
Mounting position			
Max. speed [mm/s]	"Speed–Work Load Graph"	200 or less	Over 200
Graph (Sliding bearing type)	①, ②	⑤, ⑥*	⑦, ⑧
Graph (Ball bushing bearing type)	③, ④	⑨, ⑩	⑪, ⑫

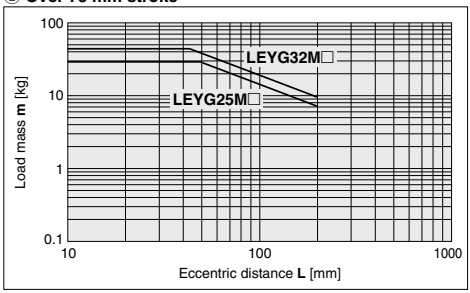
∗ For the sliding bearing type, the speed is restricted with a horizontal/moment load.

Vertical Mounting, Sliding Bearing

① **70 mm stroke or less**



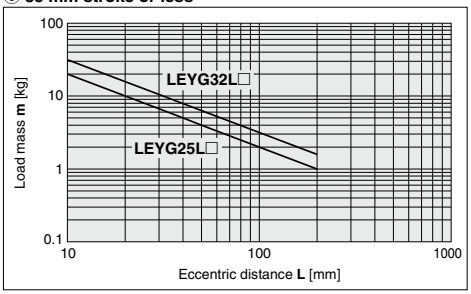
② **Over 75 mm stroke**



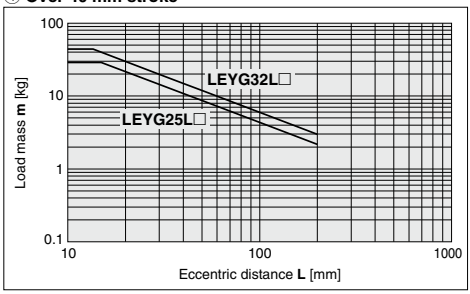
∗ The limit of vertical load mass varies depending on "lead" and "speed". Check "Speed–Work Load Graph" on page 748.

Vertical Mounting, Ball Bushing Bearing

③ **35 mm stroke or less**



④ **Over 40 mm stroke**

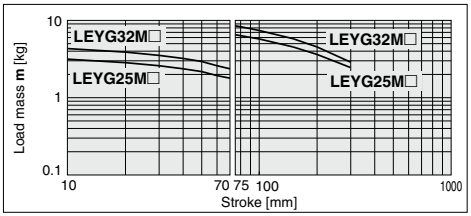


∗ The limit of vertical load mass varies depending on "lead" and "speed". Check "Speed–Work Load Graph" on page 748.

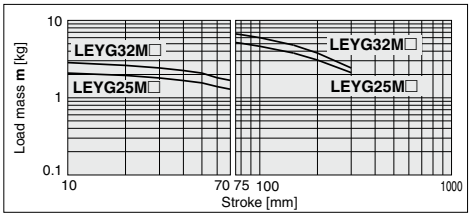
Moment Load Graph

Horizontal Mounting, Sliding Bearing

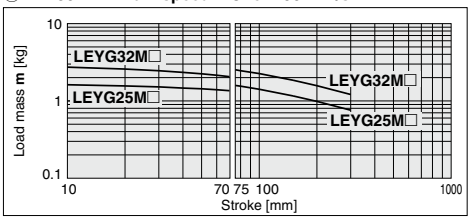
⑤ **L = 50 mm Max. speed = 200 mm/s or less**



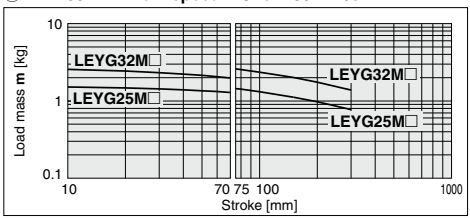
⑥ **L = 100 mm Max. speed = 200 mm/s or less**



⑦ **L = 50 mm Max. speed = Over 200 mm/s**

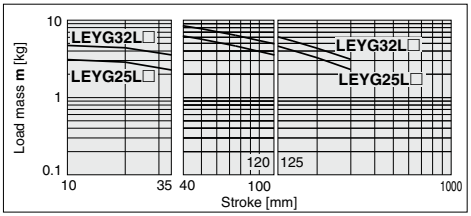


⑧ **L = 100 mm Max. speed = Over 200 mm/s**

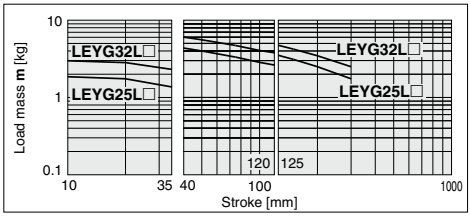


Horizontal Mounting, Ball Bushing Bearing

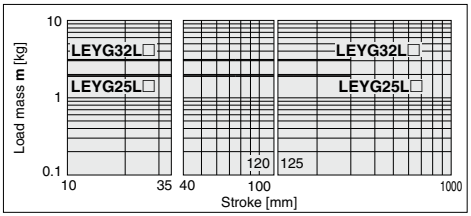
⑨ **L = 50 mm Max. speed = 200 mm/s or less**



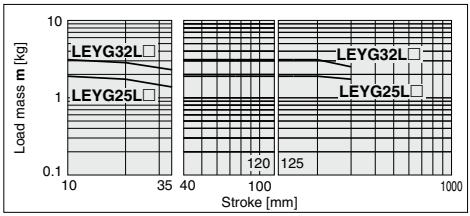
⑩ **L = 100 mm Max. speed = 200 mm/s or less**



⑪ **L = 50 mm Max. speed = Over 200 mm/s**

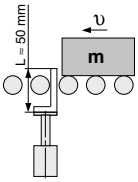


⑫ **L = 100 mm Max. speed = Over 200 mm/s**



Operating Range when Used as Stopper

LEYG□M (Sliding bearing)



⚠Caution

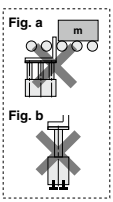
Handling Precautions

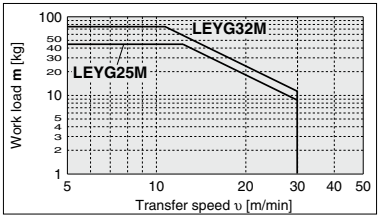
Note 1) When used as a stopper, select a model with 30 mm stroke or less.

Note 2) LEYG□L (ball bushing bearing) cannot be used as a stopper.

Note 3) Workpiece collision in series with guide rod cannot be permitted (**Fig. a**).

Note 4) The body should not be mounted on the end. It must be mounted on the top or bottom (**Fig. b**).



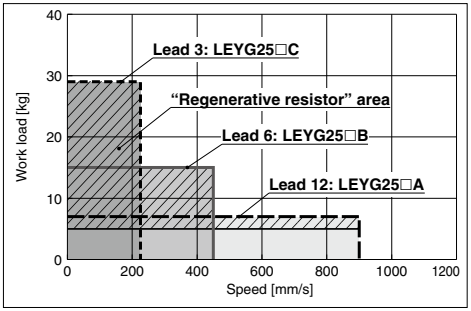


Speed–Work Load Graph/Conditions for "Regenerative Resistor" (Guide)

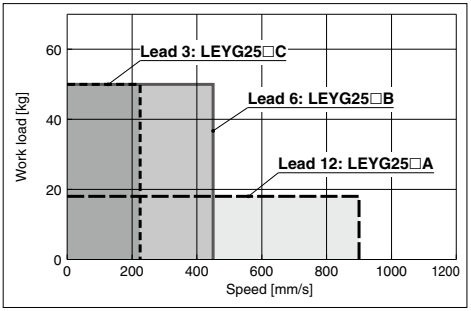
∗ These graphs show the work load when the external guide is used together. When using the LEYG alone, refer to pages 746 and 747.

LEYG25□V6 (Motor mounting position: Top mounting/In-line)

Vertical

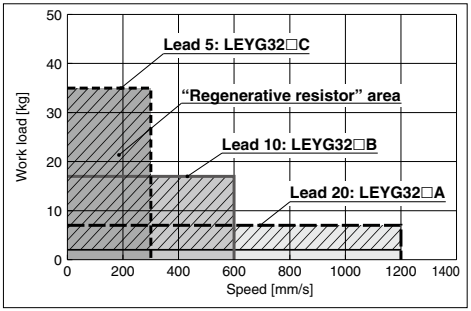


Horizontal

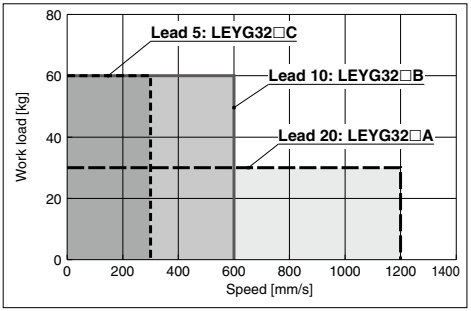


LEYG32□V7 (Motor mounting position: Top mounting)

Vertical

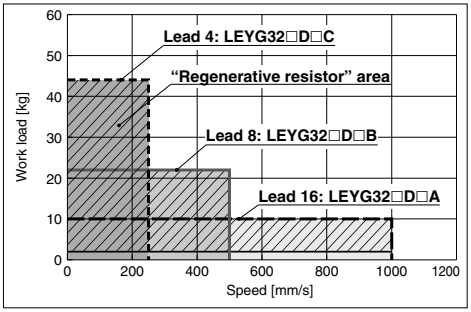


Horizontal

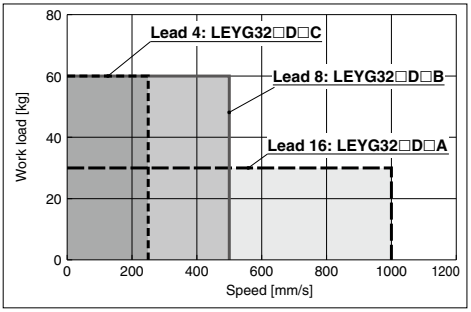


LEYG32□DV7 (Motor mounting position: In-line)

Vertical



Horizontal



"Regenerative resistor" area

∗ When using the actuator in the "Regenerative resistor" area, download the "AC servo capacity selection program/SigmaJunmaSize+" from the SMC website. Then, calculate the necessary regenerative resistor capacity to prepare an appropriate external regenerative resistor.

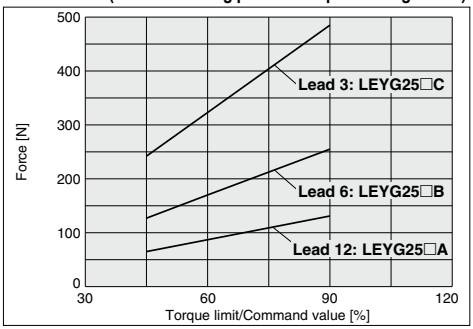
∗ Regenerative resistor should be provided by the customer.

Applicable Motor/Driver

Model	Applicable model	
	Motor	Servopack (SMC driver)
LEYG25□	SGMJV-01A3A	SGDV-R90A11□ (LECYM2-V5) SGDV-R90A21□ (LECYU2-V5)
LEYG32□	SGMJV-02A3A	SGDV-1R6A11□ (LECYM2-V7) SGDV-1R6A21□ (LECYU2-V7)

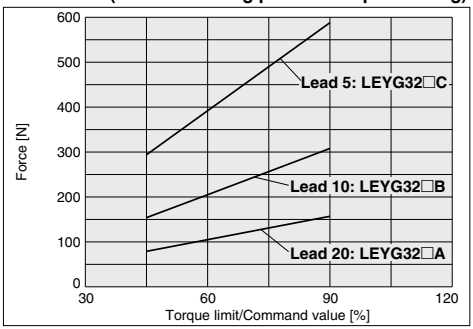
Force Conversion Graph

LEYG25□ (Motor mounting position: Top mounting/In-line)



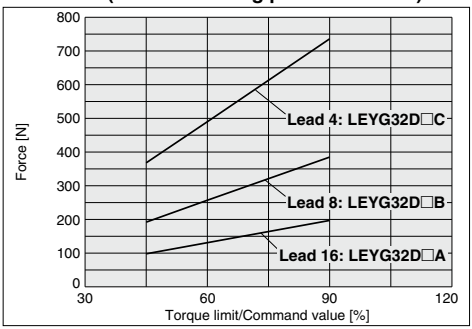
Torque limit/Command value [%]	Duty ratio [%]	Continuous pushing time [minute]
75 or less	100	—
90	60	1.5

LEYG32□ (Motor mounting position: Top mounting)



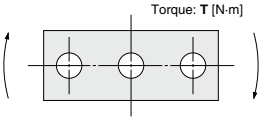
Torque limit/Command value [%]	Duty ratio [%]	Continuous pushing time [minute]
75 or less	100	—
90	60	1.5

LEYG32D (Motor mounting position: In-line)



Torque limit/Command value [%]	Duty ratio [%]	Continuous pushing time [minute]
75 or less	100	—
90	60	1.5

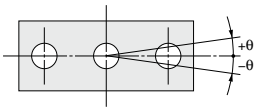
Allowable Rotational Torque of Plate: T



T [N·m]

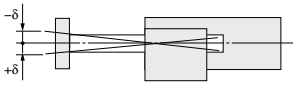
Model	Stroke [mm]				
	30	50	100	200	300
LEYG25M	1.56	1.29	3.50	2.18	1.36
LEYG25L	1.52	3.57	2.47	2.05	1.44
LEYG32M	2.55	2.09	5.39	3.26	1.88
LEYG32L	2.80	5.76	4.05	3.23	2.32

Non-rotating Accuracy of Plate: θ



Size	LEYG□M	LEYG□L
25	±0.05°	±0.04°
32		

Plate Displacement: δ



[mm]

Model	Stroke [mm]				
	30	50	100	200	300
LEYG25M	±0.26	±0.31	±0.25	±0.38	±0.36
LEYG25L	±0.13	±0.13	±0.17	±0.20	±0.23
LEYG32M	±0.23	±0.29	±0.23	±0.36	±0.34
LEYG32L	±0.11	±0.11	±0.15	±0.19	±0.22

Electric Actuator/ Guide Rod Type

LEYG Series LEYG25, 32

CE RoHS

How to Order

LEY H G 25 M ☐ V6 B – 200 ☐ ☐ – S 3 M2 ☐

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬ ⓭

❶ Accuracy

Nil	Basic type
H	High precision type

❷ Size

25
32

❸ Bearing type

M	Sliding bearing
L	Ball bushing bearing

❹ Motor mounting position

Nil	Top mounting
D	In-line

❺ Motor type

Symbol	Type	Output [W]	Actuator size	Compatible driver
V6	AC servo motor (Absolute encoder)	100	25	LECYM2-V5 LECYU2-V5
V7		200	32	LECYM2-V7 LECYU2-V7

❻ Lead [mm]

Symbol	LEYG25	LEYG32 *
A	12	16 (20)
B	6	8 (10)
C	3	4 (5)

* The values shown in ( ) are the lead for top mounting type. (Equivalent lead which includes the pulley ratio [1.25:1])

❼ Stroke [mm]

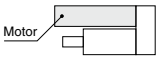
30	30
to	to
300	300

* Refer to the applicable stroke table.
* There is a limit for mounting size 32 top mounting type and 50 mm stroke or less. Refer to the dimensions.

❽ Motor option

Nil	Without option
B	With lock

* When "With lock" is selected for the top mounting type, the motor body will stick out of the end of the body for size 25 with strokes 30 mm or less. Check for interference with workpieces before selecting a model.



❾ Guide option

Nil	Without option
F	With grease retaining function

* Only available for the sliding bearing.

❿ Cable type

Nil	Without cable
S	Standard cable
R	Robotic cable (Flexible cable)

⓫ Cable length [m]

Nil	Without cable
3	3
5	5
A	10
C	20

Applicable Stroke Table

●: Standard

Model \ Stroke [mm]	30	50	100	150	200	250	300	Manufacturable stroke range
LEYG25	●	●	●	●	●	●	●	15 to 300
LEYG32	●	●	●	●	●	●	●	20 to 300

* Please consult with SMC for non-standard strokes as they are produced as special orders.

For auto switches, refer to pages 759 and 760.

Motor mounting position: Top mounting

Motor mounting position: In-line

⓬ Driver type

	Compatible driver	Power supply voltage [V]
Nil	Without driver	—
M2	LECYM2-V□	200 to 230
U2	LECYU2-V□	200 to 230

∗ When the driver type is selected, the cable is included.
Select cable type and cable length.

⓭ I/O cable length [m] ∗

Nil	Without cable
H	Without cable (Connector only)
1	1.5

∗ When "Without driver" is selected for driver type, only "Nil: Without cable" can be selected.
Refer to page 773 if I/O cable is required.
(Options are shown on page 773.)

Use of auto switches for the guide rod type LEYG series
· Insert the auto switch from the front side with rod (plate) sticking out.
· For the parts hidden behind the guide attachment (Rod stick out side), the auto switch cannot be fixed.
· Please consult with SMC when using auto switch on the rod stick out side, as it is produced as a special order.

Compatible Driver

Driver type	MECHATROLINK-Ⅱ type 	MECHATROLINK-Ⅲ type 
Series	**LECYM**	**LECYU**
Applicable network	MECHATROLINK-Ⅱ	MECHATROLINK-Ⅲ
Control encoder	Absolute 20-bit encoder	
Communication device	USB communication, RS-422 communication	
Power supply voltage [V]	200 to 230 VAC (50/60 Hz)	
Reference page	Page 766	

Specifications

	Model		LEYG25$^{M}_{L}$ (Top mounting) LEYG25$^{M}_{L}$D (In-line)			LEYG32$^{M}_{L}$ (Top mounting)			LEYG32$^{M}_{L}$D (In-line)		
Actuator specifications	Stroke [mm] Note 1)		30, 50, 100, 150, 200, 250, 300			30, 50, 100, 150, 200, 250, 300			30, 50, 100, 150, 200, 250, 300		
	Work load [kg]	Horizontal Note 2)	18	50	50	30	60	60	30	60	60
		Vertical	7	15	29	7	17	35	10	22	44
	Force [N] Note 3) (Set value: 45 to 90%)		65 to 131	127 to 255	242 to 485	79 to 157	154 to 308	294 to 588	98 to 197	192 to 385	368 to 736
	Max. speed [mm/s]		900	450	225	1200	600	300	1000	500	250
	Pushing speed [mm/s] Note 4)		35 or less			30 or less			30 or less		
	Max. acceleration/deceleration [mm/s^2]		5000			5000					
	Positioning repeatability [mm]	Basic type	±0.02			±0.02					
		High precision type	±0.01			±0.01					
	Lost motion [mm]	Basic type	0.1 or less			0.1 or less					
		High precision type	0.05 or less			0.05 or less					
	Lead [mm] (including pulley ratio)		12	6	3	20	10	5	16	8	4
	Impact/Vibration resistance [m/s^2] Note 5)		50/20			50/20					
	Actuation type		Ball screw + Belt [1:1]/Ball screw			Ball screw + Belt [1:1.25]			Ball screw		
	Guide type		Sliding bearing (LEYG□M), Ball bushing bearing (LEYG□L)								
	Operating temperature range [°C]		5 to 40			5 to 40					
	Operating humidity range [%RH]		90 or less (No condensation)			90 or less (No condensation)					
	Conditions for "Regenerative resistor" [kg] Note 6)	Horizontal	Not required			Not required					
		Vertical	5 or more			2 or more					
Electric specifications	Motor output/Size		100 W/□40			200 W/□60					
	Motor type		AC servo motor (200 VAC)			AC servo motor (200 VAC)					
	Encoder		Absolute 20-bit encoder (Resolution: 1048576 p/rev)								
	Power consumption [W] Note 7)	Horizontal	45			65			65		
		Vertical	145			175			175		
	Standby power consumption when operating [W] Note 8)	Horizontal	2			2			2		
		Vertical	8			8			8		
	Max. instantaneous power consumption [W] Note 9)		445			724			724		
Lock unit specifications	Type Note 10)		Non-magnetizing lock			Non-magnetizing lock					
	Holding force [N]		131	255	485	157	308	588	197	385	736
	Power consumption at 20°C [W] Note 11)		5.5			6			6		
	Rated voltage [V]		24 VDC $^{0}_{-10\%}$								

Note 1) Please consult with SMC for non-standard strokes as they are produced as special orders.

Note 2) The maximum value of the horizontal work load. An external guide is necessary to support the load. The actual work load changes according to the condition of the external guide. Please confirm using actual device.

Note 3) The force setting range (set values for the driver) for the force control with the torque control mode. Set it with reference to "Force Conversion Graph" on page 749.

Note 4) The allowable collision speed for collision with the workpiece with the torque control mode.

Note 5) Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. Test was performed in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)

Note 6) The work load conditions which require "Regenerative resistor" when operating at the maximum speed (Duty ratio: 100%). Order the regenerative resistor separately. For details, refer to "Conditions for Regenerative Resistor (Guide)" on page 748.

Note 7) The power consumption (including the driver) is for when the actuator is operating.

Note 8) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during operation.

Note 9) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.

Note 10) Only when motor option "With lock" is selected.

Note 11) For an actuator with lock, add the power consumption for the lock.

Weight

Product Weight: Top Mounting Type

[kg]

Series	LEYG25M							LEYG32M						
Stroke [mm]	30	50	100	150	200	250	300	30	50	100	150	200	250	300
Weight [kg]	1.7	1.9	2.2	2.6	3.0	3.3	3.6	3.1	3.4	4.0	4.7	5.3	5.7	6.2

Series	LEYG25L							LEYG32L						
Stroke [mm]	30	50	100	150	200	250	300	30	50	100	150	200	250	300
Weight [kg]	1.7	1.9	2.2	2.6	2.9	3.2	3.4	3.1	3.4	3.8	4.5	5.0	5.5	5.9

Product Weight: In-line Motor Type

[kg]

Series	LEYG25MD							LEYG32MD						
Stroke [mm]	30	50	100	150	200	250	300	30	50	100	150	200	250	300
Weight [kg]	1.7	1.9	2.2	2.6	3.0	3.3	3.6	3.2	3.4	4.0	4.7	5.3	5.8	6.2

Series	LEYG25LD							LEYG32LD						
Stroke [mm]	30	50	100	150	200	250	300	30	50	100	150	200	250	300
Weight [kg]	1.7	2.0	2.2	2.6	2.9	3.2	3.4	3.2	3.4	3.8	4.6	5.0	5.5	5.9

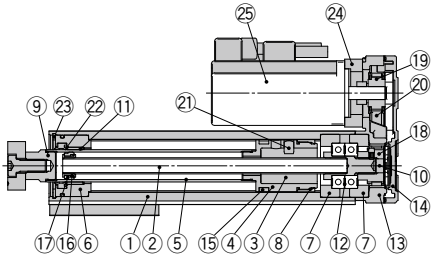
Additional Weight

[kg]

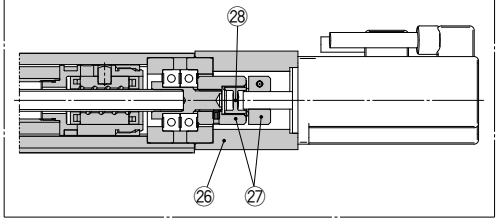
Size	25	32
Lock	0.3	0.6

Construction

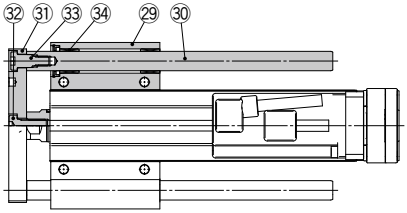
Motor mounting position: Top mounting type



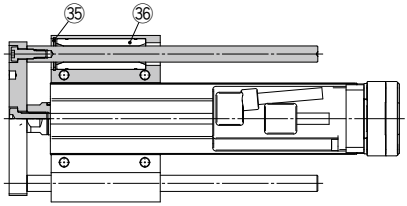
Motor mounting position: In-line type



LEYG□M



LEYG□L



Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Ball screw shaft**	Alloy steel	
3	**Ball screw nut**	—	
4	**Piston**	Aluminum alloy	
5	**Piston rod**	Stainless steel	Hard chrome plating
6	**Rod cover**	Aluminum alloy	
7	**Bearing holder**	Aluminum alloy	
8	**Rotation stopper**	POM	
9	**Socket**	Free cutting carbon steel	Nickel plating
10	**Connected shaft**	Free cutting carbon steel	Nickel plating
11	**Bushing**	Lead bronze cast	
12	**Bearing**	—	
13	**Return box**	Aluminum die-cast	Coating
14	**Return plate**	Aluminum die-cast	Coating
15	**Magnet**	—	
16	**Wear ring holder**	Stainless steel	Stroke 101 mm or more
17	**Wear ring**	POM	Stroke 101 mm or more
18	**Screw shaft pulley**	Aluminum alloy	

No.	Description	Material	Note
19	**Motor pulley**	Aluminum alloy	
20	**Belt**	—	
21	**Parallel pin**	Stainless steel	
22	**Seal**	NBR	
23	**Retaining ring**	Steel for spring	Phosphate coated
24	**Motor adapter**	Aluminum alloy	Coating
25	**Motor**	—	
26	**Motor block**	Aluminum alloy	Coating
27	**Hub**	Aluminum alloy	
28	**Spider**	Urethane	
29	**Guide attachment**	Aluminum alloy	Anodized
30	**Guide rod**	Carbon steel	
31	**Plate**	Aluminum alloy	Anodized
32	**Plate mounting cap screw**	Carbon steel	Nickel plating
33	**Guide cap screw**	Carbon steel	Nickel plating
34	**Sliding bearing**	—	
35	**Retaining ring**	Steel for spring	Phosphate coated
36	**Ball bushing**	—	

Support Block

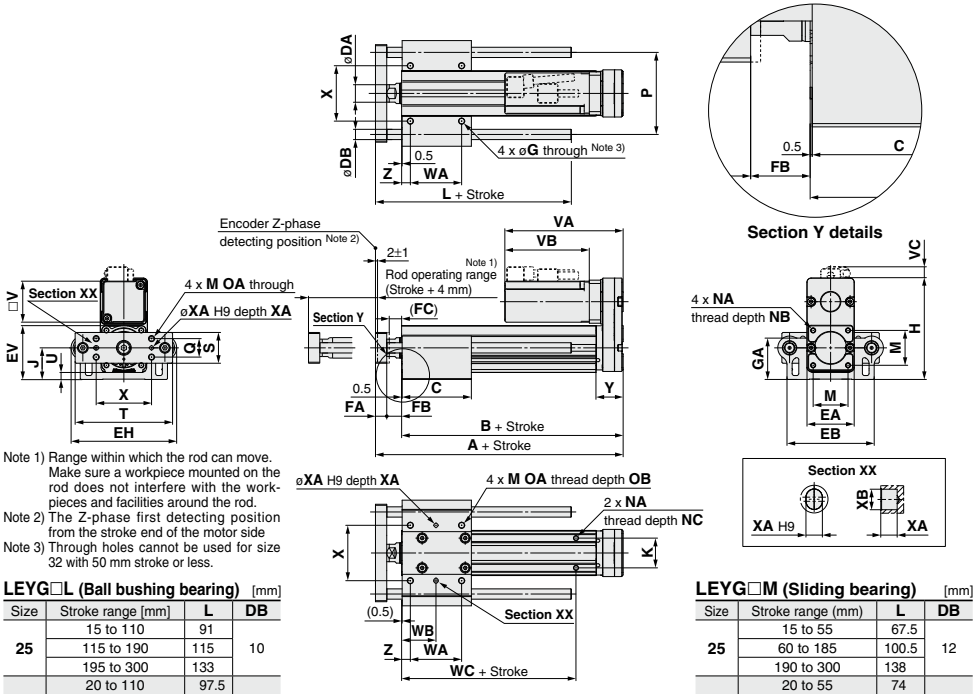
Size	Order no.
25	LEYG-S025
32	LEYG-S032

* Two body mounting screws are included with the support block.

Replacement Parts/Belt

Size	Order no.
25	LE-D-2-2
32	LE-D-2-4

Dimensions: Top Mounting



Note 1) Range within which the rod can move. Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.
Note 2) The Z-phase first detecting position from the stroke end of the motor side
Note 3) Through holes cannot be used for size 32 with 50 mm stroke or less.

LEYG□L (Ball bushing bearing) [mm]

Size	Stroke range [mm]	L	DB
25	15 to 110	91	10
	115 to 190	115	
	195 to 300	133	
32	20 to 110	97.5	13
	115 to 190	116.5	
	195 to 300	134	

LEYG□M (Sliding bearing) [mm]

Size	Stroke range (mm)	L	DB
25	15 to 55	67.5	12
	60 to 185	100.5	
	190 to 300	138	
32	20 to 55	74	16
	60 to 185	107	
	190 to 300	144	

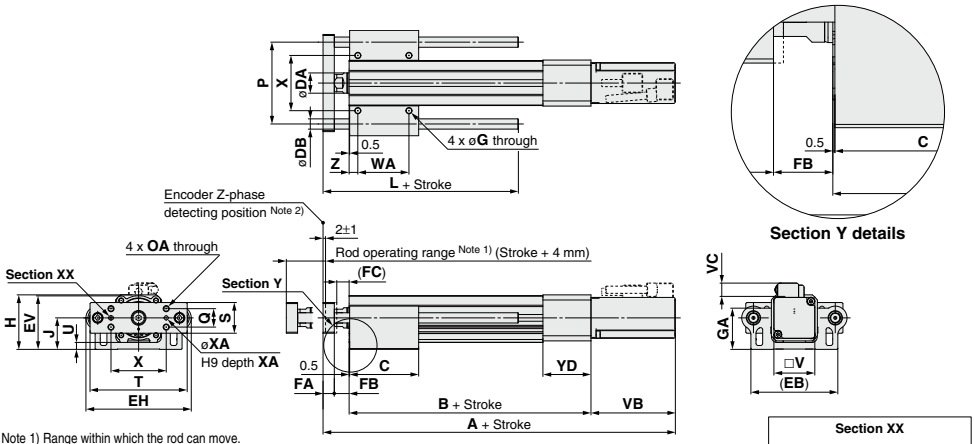
LEYG□M, LEYG□L Common [mm]

Size	Stroke range [mm]	A	B	C	DA	EA	EB	EH	EV	FA	FB	FC	G	GA	H	J	K	M	NA	NB	NC
25	15 to 35	141.5	116	50	20	46	85	103	52.3	11	14.5	12.5	5.4	40.3	98.8	30.8	29	34	M5 x 0.8	8	6.5
	40 to 100			67.5																	
	105 to 120		141																		
	125 to 200	166.5		84.5																	
	205 to 300			102																	
32	20 to 35	160.5	130	55	25	60	101	123	63.8	12	18.5	16.5	5.4	50.3	125.3	38.3	30	40	M6 x 1.0	10	8.5
	40 to 100			68																	
	105 to 120																				
	125 to 200	190.5	160	85																	
	205 to 300			102																	

Size	Stroke range [mm]	OA	OB	P	Q	S	T	U	V	WA	WB	WC	X	XA	XB	Y	Z
25	15 to 35	M6 x 1.0	12	80	18	30	95	6.8	40	35	26	70	54	4	5	26.5	8.5
	40 to 100									50	33.5						
	105 to 120											95					
	125 to 200									70	43.5						
	205 to 300									85	51						
32	20 to 35	M6 x 1.0	12	95	28	40	117	7.3	60	40	28.5	75	64	5	6	34	8.5
	40 to 100									50	33.5						
	105 to 120											105					
	125 to 200									70	43.5						
	205 to 300									85	51						

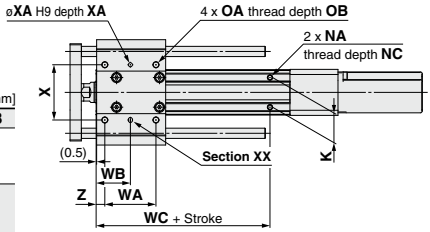
Size	Without lock			With lock		
	VA	VB	VC	VA	VB	VC
25	115.5	82.5	11	160.5	127.5	11
32	120	80	14	160	120	14

Dimensions: In-line Motor



Note 1) Range within which the rod can move. Make sure a workpiece mounted on the rod does not interfere with the work-pieces and facilities around the rod.

Note 2) The Z-phase first detecting position from the stroke end of the motor side



LEYG□L (Ball bushing bearing) [mm]

Size	Stroke range [mm]	L	DB
25	15 to 110	91	10
	115 to 190	115	
	195 to 300	133	
32	20 to 110	97.5	13
	115 to 190	116.5	
	195 to 300	134	

LEYG□M (Sliding bearing) [mm]

Size	Stroke range [mm]	L	DB
25	15 to 55	67.5	12
	60 to 185	100.5	
	190 to 300	138	
32	20 to 55	74	16
	60 to 185	107	
	190 to 300	144	

LEYG□M, LEYG□L Common

[mm]

Size	Stroke range [mm]	B	C	DA	EB	EH	EV	FA	FB	FC	G	GA	H	J	K	NA	NC
25	15 to 35	136.5	50	20	85	103	52.3	11	14.5	12.5	5.4	40.3	53.3	30.8	29	M5 x 0.8	6.5
	40 to 100		67.5														
	105 to 120																
	125 to 200	161.5	84.5														
	205 to 300		102														
32	20 to 35	156	55	25	101	123	63.8	12	18.5	16.5	5.4	50.3	68.3	38.3	30	M6 x 1.0	8.5
	40 to 100		68														
	105 to 120																
	125 to 200	186	85														
	205 to 300		102														

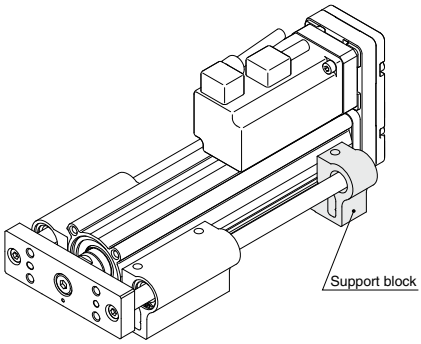
Size	Stroke range [mm]	OA	OB	P	Q	S	T	U	V	WA	WB	WC	X	XA	XB	YD	Z
25	15 to 35	M6 x 1.0	12	80	18	30	95	6.8	40	35	26	70	54	4	5	47	8.5
	40 to 100									50	33.5						
	105 to 120											95					
	125 to 200									70	43.5						
	205 to 300									85	51						
32	20 to 35	M6 x 1.0	12	95	28	40	117	7.3	60	40	28.5	75	64	5	6	60	8.5
	40 to 100									50	33.5						
	105 to 120											105					
	125 to 200									70	43.5						
	205 to 300									85	51						

Size	Stroke range [mm]	Without lock			With lock		
		A	VB	VC	A	VB	VC
25	15 to 100	255.5	82.5	11.5	300.5	127.5	11.5
	105 to 300	280.5			325.5		
32	15 to 100	266.5	80	14	306.5	120	14
	105 to 300	296.5			336.5		

Support Block

●Guide for support block application

When the stroke exceeds 100 mm and the mounting orientation is horizontal, the body will be bent. Mounting the support block is recommended. (Please order it separately from the models shown below.)

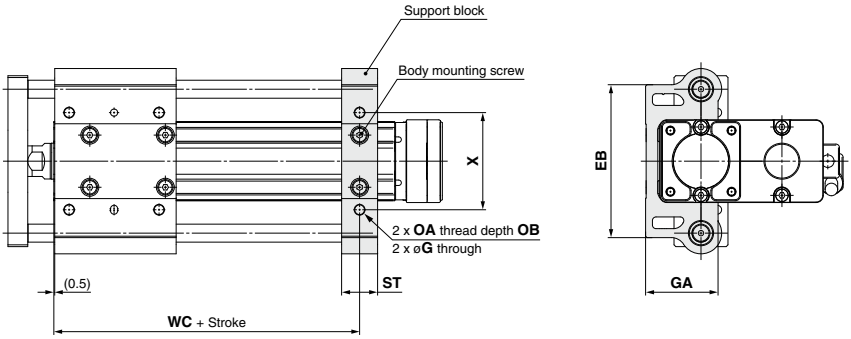


Support Block Model

LEYG-S025

●**Size**

025	For size 25
032	For size 32



⚠Caution

Do not install the body using only a support block.
The support block should be used only for support.

[mm]

Size	Model	Stroke range	EB	G	GA	OA	OB	ST	WC	X
25	**LEYG-S025**	15 to 100	85	5.4	40.3	M6 x 1.0	12	20	70	54
		105 to 300							95	
32	**LEYG-S032**	20 to 100	101	5.4	50.3	M6 x 1.0	12	22	75	64
		105 to 300							105	

∗ Two body mounting screws are included with the support block.
∗ The through holes of the LEYG-S032 cannot be used for the top mounting type. Use taps on the bottom.

Solid State Auto Switch
Direct Mounting Type
D-M9N(V)/D-M9P(V)/D-M9B(V)

RoHS

Refer to SMC website for the details of the products conforming to the international standards.

Grommet

- **2-wire load current is reduced (2.5 to 40 mA).**
- **Using flexible cable as standard spec.**

Auto Switch Specifications

PLC: Programmable Logic Controller

D-M9□, D-M9□V (With indicator light)						
Auto switch model	D-M9N	D-M9NV	D-M9P	D-M9PV	D-M9B	D-M9BV
Electrical entry direction	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring type	3-wire				2-wire	
Output type	NPN		PNP		—	
Applicable load	IC circuit, Relay, PLC				24 VDC relay, PLC	
Power supply voltage	5, 12, 24 VDC (4.5 to 28 V)				—	
Current consumption	10 mA or less				—	
Load voltage	28 VDC or less		—		24 VDC (10 to 28 VDC)	
Load current	40 mA or less				2.5 to 40 mA	
Internal voltage drop	0.8 V or less at 10 mA (2 V or less at 40 mA)				4 V or less	
Leakage current	100 μA or less at 24 VDC				0.8 mA or less	
Indicator light	Red LED illuminates when turned ON.					
Standard	CE marking, RoHS					

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-M9N(V)	D-M9P(V)	D-M9B(V)
Sheath	Outside diameter [mm]	2.6		
Insulator	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
	Outside diameter [mm]	0.88		
Conductor	Effective area [mm²]	0.15		
	Strand diameter [mm]	0.05		
Minimum bending radius [mm] (Reference values)		17		

Note 1) Refer to Best Pneumatics No. 2-1 for solid state auto switch common specifications.
Note 2) Refer to Best Pneumatics No. 2-1 for lead wire lengths.

Weight

(g)

Auto switch model		D-M9N(V)	D-M9P(V)	D-M9B(V)
Lead wire length	0.5 m (**Nil**)	8		7
	1 m (**M**)	14		13
	3 m (**L**)	41		38
	5 m (**Z**)	68		63

⚠Caution

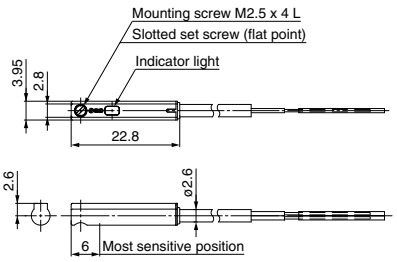
Precautions

Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.

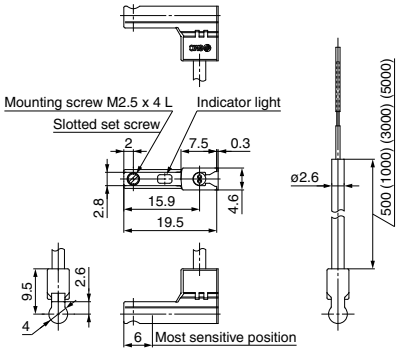
Dimensions

(mm)

D-M9□



D-M9□V



2-Color Indicator Solid State Auto Switch Direct Mounting Type
D-M9NW(V)/D-M9PW(V)/D-M9BW(V)

RoHS

Refer to SMC website for the details of the products conforming to the international standards.

Grommet

- **2-wire load current is reduced (2.5 to 40 mA).**
- **Using flexible cable as standard spec.**
- **The proper operating range can be determined by the color of the light. (Red → Green ← Red)**

⚠Caution

Precautions

Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-M9□W, D-M9□WV (With indicator light)						
Auto switch model	D-M9NW	D-M9NWV	D-M9PW	D-M9PWV	D-M9BW	D-M9BWV
Electrical entry direction	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring type	3-wire				2-wire	
Output type	NPN		PNP		—	
Applicable load	IC circuit, Relay, PLC				24 VDC relay, PLC	
Power supply voltage	5, 12, 24 VDC (4.5 to 28 V)				—	
Current consumption	10 mA or less				—	
Load voltage	28 VDC or less		—		24 VDC (10 to 28 VDC)	
Load current	40 mA or less				2.5 to 40 mA	
Internal voltage drop	0.8 V or less at 10 mA (2 V or less at 40 mA)				4 V or less	
Leakage current	100 μA or less at 24 VDC				0.8 mA or less	
Indicator light	Operating range ····· Red LED illuminates. Proper operating range ····· Green LED illuminates.					
Standard	CE marking, RoHS					

Oilproof Flexible Heavy-duty Lead Wire Specifications

Auto switch model		D-M9NW(V)	D-M9PW(V)	D-M9BW(V)
Sheath	Outside diameter [mm]	2.6		
Insulator	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
	Outside diameter [mm]	0.88		
Conductor	Effective area [mm²]	0.15		
	Strand diameter [mm]	0.05		
Minimum bending radius [mm] (Reference values)		17		

Note 1) Refer to Best Pneumatics No. 2-1 for solid state auto switch common specifications.
Note 2) Refer to Best Pneumatics No. 2-1 for lead wire lengths.

Weight

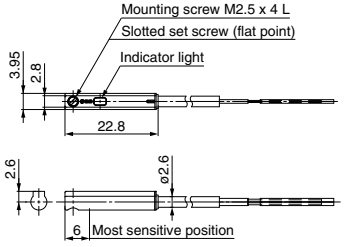
(g)

Auto switch model		D-M9NW(V)	D-M9PW(V)	D-M9BW(V)
Lead wire length	0.5 m (**Nil**)	8		7
	1 m (**M**)	14		13
	3 m (**L**)	41		38
	5 m (**Z**)	68		63

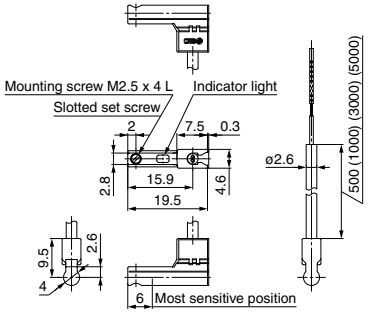
Dimensions

(mm)

D-M9□W



D-M9□WV



LEY/LEYG Series
Electric Actuators/ Specific Product Precautions 1

Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 8 for Electric Actuator Precautions.

Design/Selection

⚠Warning

1. Do not apply a load in excess of the specification limits.

Select a suitable actuator by work load and allowable lateral load on the rod end. If the product is used outside of the specification limits, the eccentric load applied to the piston rod will be excessive and have adverse effects such as creating play on the sliding parts of the piston rod, degrading accuracy and shortening the life of the product.

2. Do not use the product in applications where excessive external force or impact force is applied to it.

This can cause failure.

3. When used as a stopper, select the LEYG series "Sliding bearing" for a stroke of 30 mm or less.

4. When used as a stopper, fix the main body with a guide attachment ("Top mounting" or "Bottom mounting").

If the end of the actuator is used to fix the main body (end mounting), the excessive load acts on the actuator, which adversely affects the operation and life of the product.

Handling

⚠Caution

1. When the pushing operation is used, be sure to set to "Torque control mode", and use within the specified pushing speed range for each series.

Do not allow the piston rod to hit the workpiece and end of the stroke in the "Position control mode", "Speed control mode" or "Positioning mode". The lead screw, bearing and internal stopper may be damaged and lead to malfunction.

2. When operating with "Torque control mode", the value of the internal torque limit or the external torque limit (LECY) should be set to 90% or less. (150% or less only for the LEY63)

It may lead to damage and malfunction.

3. The forward/reverse torque limit is set to 800% as default.

When the product is operated with a smaller value than 300%, acceleration when driving can decrease. Set the value after confirming the actual device to be used.

4. The maximum speed of this actuator is affected by the product stroke.

Check the model selection section of the catalog.

5. Do not apply a load, impact or resistance in addition to the transferred load during return to origin.

Additional force will cause the displacement of the origin position.

6. Do not scratch or dent the sliding parts of the piston rod, by striking or attaching objects.

The piston rod and guide rod are manufactured to precise tolerances, even a slight deformation may cause malfunction.

7. When an external guide is used, connect it in such a way that no impact or load is applied to it.

Use a freely moving connector (such as a floating joint).

8. Do not operate by fixing the piston rod and moving the actuator body.

Excessive load will be applied to the piston rod, leading to damage to the actuator and reduced the life of the product.

Handling

⚠Caution

9. When an actuator is operated with one end fixed and the other free (ends tapped or flange type), a bending moment may act on the actuator due to vibration generated at the stroke end, which can damage the actuator. In such a case, install a mounting bracket to suppress the vibration of the actuator body or reduce the speed so that the actuator does not vibrate at the stroke end.

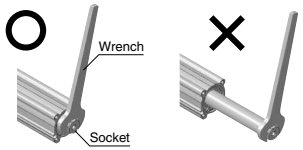
Also, use a mounting bracket when moving the actuator body or when a long stroke actuator is mounted horizontally and fixed at one end.

10. Avoid using the electric actuator in such a way that rotational torque would be applied to the piston rod.

This may cause deformation of the non-rotating guide, abnormal responses of the auto switch, play in the internal guide or an increase in the sliding resistance.
Refer to the table below for the approximate values of the allowable range of rotational torque.

Allowable rotational torque [N·m] or less	LEY25□	LEY32	LEY63
	1.1	1.4	2.8

When screwing in a bracket or nut to the end of the piston rod, hold the flats of the rod end with a wrench (the piston rod should be fully retracted). Do not apply tightening torque to the non-rotating mechanism.



11. When using auto switch with the guide rod type LEYG series, the following limits will be in effect. Please select the product while paying attention to this.

- Insert the auto switch from the front side with rod (plate) sticking out.
- The auto switches with perpendicular electrical entry cannot be used.
- For the parts hidden behind the guide attachment (Rod stick out side), the auto switch cannot be fixed.
- Consult with SMC when using auto switch on the rod stick out side.

Enclosure

IP – □□

First characteristic numeral ● ● **Second characteristic numeral**

- **First Characteristics:**
  Degrees of protection against solid foreign objects

0	Non-protected
1	Protected against solid foreign objects of 50 mmø and greater
2	Protected against solid foreign objects of 12 mmø and greater
3	Protected against solid foreign objects of 2.5 mmø and greater
4	Protected against solid foreign objects of 1.0 mmø and greater
5	Dust-protected
6	Dust-tight

- **Second Characteristics:**
  Degrees of protection against water

0	Non-protected	—
1	Protected against vertically falling water drops	Dripproof type 1
2	Protected against vertically falling water drops when enclosure tilted up to 15°	Dripproof type 2
3	Protected against rainfall when enclosure tilted up to 60°	Rainproof type
4	Protected against splashing water	Splashproof type
5	Protected against water jets	Water-jet-proof type
6	Protected against powerful water jets	Powerful water-jet-proof type
7	Protected against the effects of temporary immersion in water	Immersible type
8	Protected against the effects of continuous immersion in water	Submersible type

Example) IP65: Dust-tight, Water-jet-proof type
"Water-jet-proof type" means that no water intrudes inside an equipment that could hinder from operating normally by means of applying water for 3 minutes in the prescribed manner. Take appropriate protection measures, since a device is not usable in an environment where a droplet of water is splashed constantly.

Mounting

⚠Caution

1. When mounting workpieces or jigs to the piston rod end, hold the flats of the piston rod end with a wrench so that the piston rod does not rotate. The bolt should be tightened within the specified torque range.
This may cause abnormal responses of the auto switch, play in the internal guide or an increase in the sliding resistance.

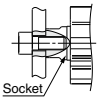
2. When mounting the product and/or a workpiece, tighten the mounting screws within the specified torque range.
Tightening the screws with a higher torque than recommended may cause a malfunction, whilst the tightening with a lower torque can cause the displacement of the mounting position or in extreme conditions the actuator could become detached from its mounting position.

Mounting

⚠Caution

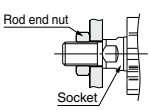
<LEY Series>

Workpiece fixed/Rod end female thread

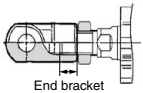


Model	Screw size	Max. tightening torque [N·m]	Max. screw-in depth [mm]	End socket width across flats [mm]
LEY25	M8 x 1.25	12.5	13	17
LEY32	M8 x 1.25	12.5	13	22
LEY63	M16 x 2	106	21	36

Workpiece fixed/Rod end male thread



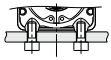
Model	Thread size	Max. tightening torque [N·m]	Effective thread length [mm]	End socket width across flats [mm]
LEY25	M14 x 1.5	50	20.5	17
LEY32	M14 x 1.5	50	20.5	22
LEY63	M18 x 1.5	97	26	36



Model	Rod end nut		End bracket screw-in depth [mm]
	Width across flats [mm]	Length [mm]	
LEY25	22	8	14
LEY32	22	8	14
LEY63	27	11	18

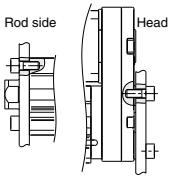
∗ Rod end nut is an accessory.

Body fixed/Body bottom tapped type



Model	Screw size	Max. tightening torque [N·m]	Max. screw-in depth [mm]
LEY25	M5 x 0.8	3.0	6.5
LEY32	M6 x 1.0	5.2	8.8
LEY63	M8 x 1.25	12.5	10

Body fixed/Rod side/Head side tapped type



Model	Screw size	Max. tightening torque [N·m]	Max. screw-in depth [mm]
LEY25	M5 x 0.8	3.0	8
LEY32	M6 x 1.0	5.2	10
LEY63	M8 x 1.25	12.5	16

∗ Except the LEY□D.

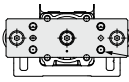
Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 8 for Electric Actuator Precautions.

Mounting

⚠Caution

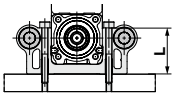
<LEYG Series>

Workpiece fixed/Plate tapped type



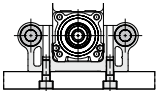
Model	Screw size	Max. tightening torque [N·m]	Max. screw-in depth [mm]
LEYG25$^{M}_{L}$	M6 x 1.0	5.2	11
LEYG32$^{M}_{L}$	M6 x 1.0	5.2	12

Body fixed/Top mounting



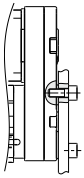
Model	Screw size	Max. tightening torque [N·m]	Length: L [mm]
LEYG25$^{M}_{L}$	M5 x 0.8	3.0	40.3
LEYG32$^{M}_{L}$	M5 x 0.8	3.0	50.3

Body fixed/Bottom mounting



Model	Screw size	Max. tightening torque [N·m]	Max. screw-in depth [mm]
LEYG25$^{M}_{L}$	M6 x 1.0	5.2	12
LEYG32$^{M}_{L}$	M6 x 1.0	5.2	12

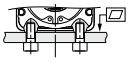
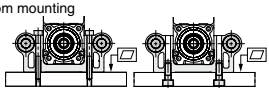
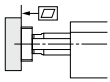
Body fixed/Head side tapped type



Model	Screw size	Max. tightening torque [N·m]	Max. screw-in depth [mm]
LEYG25$^{M}_{L}$	M5 x 0.8	3.0	8
LEYG32$^{M}_{L}$	M6 x 1.0	5.2	10

3. Keep the flatness of the mounting surface within the following ranges when mounting the actuator body and workpiece.

Unevenness of a workpiece or base mounted on the body of the product may cause an increase in the sliding resistance.

Model	Mounting position	Flatness
LEY□	Body/Body bottom 	0.1 mm or less
LEYG□	Bottom mounting 	0.05 mm or less
	Workpiece/Plate mounting 	0.05 mm or less

Maintenance

⚠Warning

1. Ensure that the power supply is stopped and the workpiece is removed before starting maintenance work or replacement of the product.

- **Maintenance frequency**

Perform maintenance according to the table below.

Frequency	Appearance check	Belt check
Inspection before daily operation	○	—
Inspection every 6 months/250 km/5 million cycles*	○	○

* Select whichever comes first.

- **Items for visual appearance check**

1. Loose set screws, Abnormal dirt
2. Check of flaw and cable joint
3. Vibration, Noise

- **Items for belt check**

Stop operation immediately and replace the belt when belt appear to be below. Further, ensure your operating environment and conditions satisfy the requirements specified for the product.

a. Tooth shape canvas is worn out
Canvas fiber becomes fuzzy. Rubber is removed and the fiber becomes whitish. Lines of fibers become unclear.

b. Peeling off or wearing of the side of the belt
Belt corner becomes round and frayed thread sticks out.

c. Belt partially cut
Belt is partially cut. Foreign matter caught in teeth other than cut part causes flaw.

d. Vertical line of belt teeth
Flaw which is made when the belt runs on the flange.

e. Rubber back of the belt is softened and sticky

f. Crack on the back of the belt

MECHATROLINK Compatible AC Servo Motor Driver

Absolute Type *LECYM Series*

MECHATROLINK-Ⅱ Type

Absolute Type *LECYU Series*

MECHATROLINK-Ⅲ Type

MECHATRONLINK Compatible

AC Servo Motor Driver
Absolute Type
LECYM/LECYU Series

(MECHATROLINK-Ⅱ Type) (MECHATROLINK-Ⅲ Type)

LECYM LECYU

CE RoHS

How to Order

Driver **LECY M 2 −** ☐

Driver type

M	MECHATROLINK-Ⅱ type (For absolute encoder)
U	MECHATROLINK-Ⅲ type (For absolute encoder)

Power supply voltage

2	200 to 230 VAC, 50/60 Hz

Compatible motor type

Symbol	Type	Capacity	Encoder
V5	AC servo motor (V6 *2)	100 W	Absolute
V7	AC servo motor (V7 *2)	200 W	
V8	AC servo motor (V8 *2)	400 W	

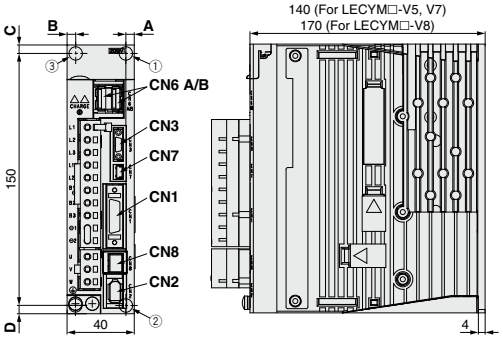
*1 If the I/O signal connector (CN1) is required, order the part number "LE-CYNA" separately.

*2 The symbol shows the motor type (actuator).

Dimensions

MECHATROLINK-Ⅱ type

LECYM2-V☐



Connector name	Description
CN1	I/O signal connector
CN2	Encoder connector
CN3 Note)	Digital operator connector
CN6A	MECHATROLINK-Ⅱ communication connector
CN6B	MECHATROLINK-Ⅱ communication connector
CN7	PC connector
CN8	Safety connector

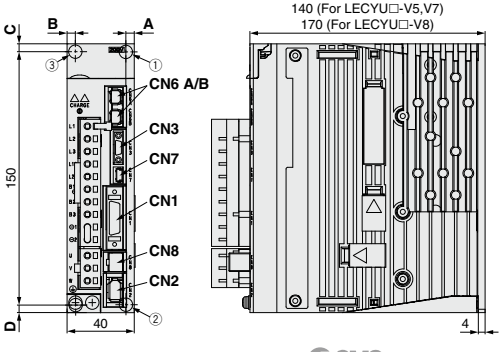
Note) Digital operator is JUSP-OP05A-1-E manufactured by YASKAWA Electric Corporation. When using the digital operator, it should be provided by the customer.

Motor capacity	Hole position	Mounting dimensions A	B	C	D	Mounting hole
V5 (100 W)	①②	5	—	5	5	ø5
V7 (200 W)	①②	5	—	5	5	
V8 (400 W)	②③	5	5	5	5	

* The mounting hole position varies depending on the motor capacity.

MECHATROLINK-Ⅲ type

LECYU2-V☐



Connector name	Description
CN1	I/O signal connector
CN2	Encoder connector
CN3 Note)	Digital operator connector
CN6A	MECHATROLINK-Ⅲ communication connector
CN6B	MECHATROLINK-Ⅲ communication connector
CN7	PC connector
CN8	Safety connector

Note) Digital operator is JUSP-OP05A-1-E manufactured by YASKAWA Electric Corporation. When using the digital operator, it should be provided by the customer.

Motor capacity	Hole position	Mounting dimensions A	B	C	D	Mounting hole
V5 (100 W)	①②	5	—	5	5	ø5
V7 (200 W)	①②	5	—	5	5	
V8 (400 W)	②③	5	5	5	5	

* The mounting hole position varies depending on the motor capacity.

SMC

Specifications

MECHATROLINK-Ⅱ Type

Model			LECYM2-V5	LECYM2-V7	LECYM2-V8
Compatible motor capacity [W]			100	200	400
Compatible encoder			Absolute 20-bit encoder (Resolution: 1048576 p/rev)		
Main circuit power supply	Power voltage [V]		Three phase 200 to 230 VAC (50/60 Hz)		
	Allowable voltage fluctuation [V]		Three phase 170 to 253 VAC		
Control power supply	Power voltage [V]		Single phase 200 to 230 VAC (50/60 Hz)		
	Allowable voltage fluctuation [V]		Single phase 170 to 253 VAC		
Power supply capacity (at rated output) [A]			0.91	1.6	2.8
Input circuit			NPN (Sink circuit)/PNP (Source circuit)		
Parallel input (7 inputs)	Number of optional allocations	7 inputs	[Initial allocation] · Homing deceleration switch (/DEC) · External latch (/EXT 1 to 3) · Forward run prohibited (P-OT), reverse run prohibited (N-OT) [Can be allocated by setting the parameters.] · Forward external torque limit (/P-CL), reverse external torque limit (/N-CL) Signal allocations can be performed, and positive and negative logic can be changed.		
Parallel output (4 outputs)	Number of fixed allocations	1 output	· Servo alarm (ALM)		
	Number of optional allocations	3 outputs	[Initial allocation] · Lock (/BK) [Can be allocated by setting the parameters.] · Positioning completion (/COIN) · Speed limit detection (/VLT) · Speed coincidence detection (/V-CMP) · Rotation detection (/TGON) · Warning (/WARN) · Servo ready (/S-RDY) · Near (/NEAR) · Torque limit detection (/CLT) Signal allocations can be performed, and positive and negative logic can be changed.		
MECHATROLINK communication	Communication protocol		MECHATROLINK-Ⅱ		
	Station address		41H to 5FH		
	Transmission speed		10 Mbps		
	Transmission cycle		250 µs, 0.5 ms to 4 ms (Multiples of 0.5 ms)		
	Number of transmission bytes		17 bytes, 32 bytes		
	Max. number of stations		30		
	Cable length		Overall cable length: 50 m or less, Cable length between the stations: 0.5 m or more		
Command method	Control method		Position, speed, or torque control with MECHATROLINK-Ⅱ communication		
	Command input		MECHATROLINK-Ⅱ command (Motion, data setting, monitoring or adjustment)		
Function	Gain adjustment		Tuning-less/Advanced autotuning/One-parameter tuning		
	Communication setting		USB communication, RS-422 communication		
	Torque limit		Internal torque limit, external torque limit, and torque limit by analog command		
	Encoder output		Phase A, B, Z: Line driver output		
	Emergency stop		CN8 Safety function		
	Overtravel		Dynamic brake stop, deceleration to a stop, or free run to a stop at P-OT or N-OT		
	Alarm		Alarm signal, MECHATROLINK-Ⅱ command		
Operating temperature range [°C]			0 to 55 (No freezing)		
Operating humidity range [%RH]			90 or less (No condensation)		
Storage temperature range [°C]			–20 to 85 (No freezing)		
Storage humidity range [%RH]			90 or less (No condensation)		
Insulation resistance [MΩ]			10 MΩ (500 VDC)		
Weight [g]			900		1000

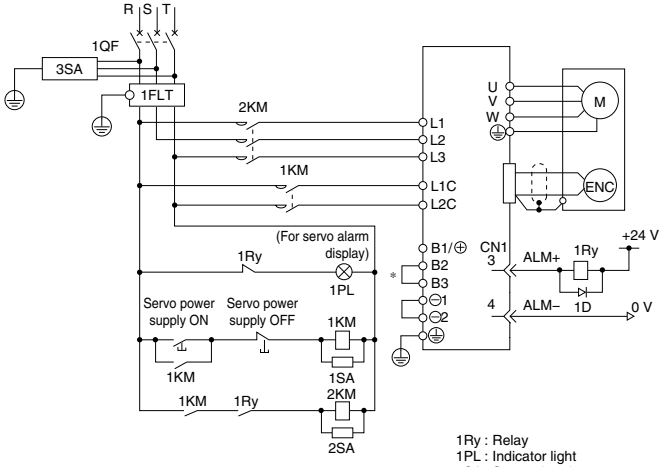
Specifications

MECHATROLINK-Ⅲ Type

Model			LECYU2-V5	LECYU2-V7	LECYU2-V8
Compatible motor capacity [W]			100	200	400
Compatible encoder			Absolute 20-bit encoder (Resolution: 1048576 p/rev)		
Main circuit power supply	Power voltage [V]		Three phase 200 to 230 VAC (50/60 Hz)		
	Allowable voltage fluctuation [V]		Three phase 170 to 253 VAC		
Control power supply	Power voltage [V]		Single phase 200 to 230 VAC (50/60 Hz)		
	Allowable voltage fluctuation [V]		Single phase 170 to 253 VAC		
Power supply capacity (at rated output) [A]			0.91	1.6	2.8
Input circuit			NPN (Sink circuit)/PNP (Source circuit)		
Parallel input (7 inputs)	Number of optional allocations	7 inputs	[Initial allocation] · Homing deceleration switch (/DEC) · External latch (/EXT 1 to 3) · Forward run prohibited (P-OT), reverse run prohibited (N-OT) [Can be allocated by setting the parameters.] · Forward external torque limit (/P-CL), reverse external torque limit (/N-CL) Signal allocations can be performed, and positive and negative logic can be changed.		
Parallel output (4 outputs)	Number of fixed allocations	1 output	· Servo alarm (ALM)		
	Number of optional allocations	3 outputs	[Initial allocation] · Lock (/BK) [Can be allocated by setting the parameters.] · Positioning completion (/COIN) · Speed limit detection (/VLT) · Speed coincidence detection (/V-CMP) · Rotation detection (/TGON) · Warning (/WARN) · Servo ready (/S-RDY) · Near (/NEAR) · Torque limit detection (/CLT) Signal allocations can be performed, and positive and negative logic can be changed.		
MECHATROLINK communication	Communication protocol		MECHATROLINK-Ⅲ		
	Station address		03H to EFH		
	Transmission speed		100 Mbps		
	Transmission cycle		125 μs, 250 μs, 500 μs, 750 μs, 1 ms to 4 ms (Multiples of 0.5 ms)		
	Number of transmission bytes		16 bytes, 32 bytes, 48 bytes,		
	Max. number of stations		62		
	Cable length		Cable length between the stations: 0.5 m or more, 75 m or less		
Command method	Control method		Position, speed, or torque control with MECHATROLINK-Ⅲ communication		
	Command input		MECHATROLINK-Ⅲ command (Motion, data setting, monitoring or adjustment)		
Function	Gain adjustment		Tuning-less/Advanced autotuning/One-parameter tuning		
	Communication setting		USB communication, RS-422 communication		
	Torque limit		Internal torque limit, external torque limit, and torque limit by analog command		
	Encoder output		Phase A, B, Z: Line driver output		
	Emergency stop		CN8 Safety function		
	Overtravel		Dynamic brake stop, deceleration to a stop, or free run to a stop at P-OT or N-OT		
	Alarm		Alarm signal, MECHATROLINK-Ⅲ command		
Operating temperature range [°C]			0 to 55 (No freezing)		
Operating humidity range [%RH]			90 or less (No condensation)		
Storage temperature range [°C]			–20 to 85 (No freezing)		
Storage humidity range [%RH]			90 or less (No condensation)		
Insulation resistance [MΩ]			10 MΩ (500 VDC)		
Weight [g]			900		1000

Power Supply Wiring Example: LECY□

■Three phase 200 V **LECYM2-□**
LECYU2-□



1QF : Molded-case circuit breaker
1FLT: Noise filter
1KM : Magnetic contactor (for control power supply)
2KM : Magnetic contactor (for main circuit power supply)

1Ry : Relay
1PL : Indicator light
1SA: Surge absorber
2SA: Surge absorber
3SA: Surge absorber
1D : Flywheel diode

* For the LECY□2-V5, LECY□2-V7 and LECY□2-V8, terminals B2 and B3 are not short-circuited. Do not short-circuit these terminals.

Main Circuit Power Supply Connector * Accessory

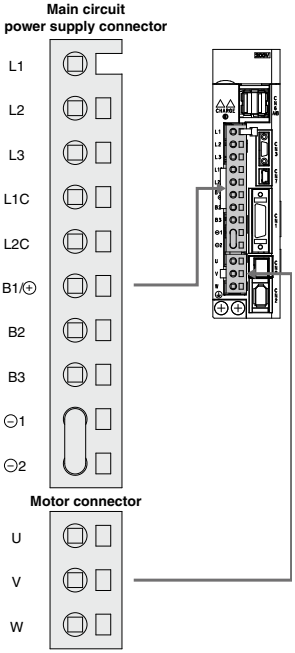
Terminal name	Function	Details
L1	Main circuit power supply	Connect the main circuit power supply. Single phase 200 to 230 VAC, 50/60 Hz Connection terminal: L1, L2 Three phase 200 to 230 VAC, 50/60 Hz Connection terminal: L1, L2, L3
L2		
L3		
L1C	Control power supply	Connect the control power supply. Single phase 200 to 230 VAC, 50/60 Hz Connection terminal: L1C, L2C
L2C		
B1/⊕	External regenerative resistor connection terminal	When the regenerative resistor is required, connect it between terminals B1⊕ and B2.
B2		
B3		
⊖1	Main circuit negative terminal	⊖1 and ⊖2 are connected at shipment.
⊖2		

Motor Connector * Accessory

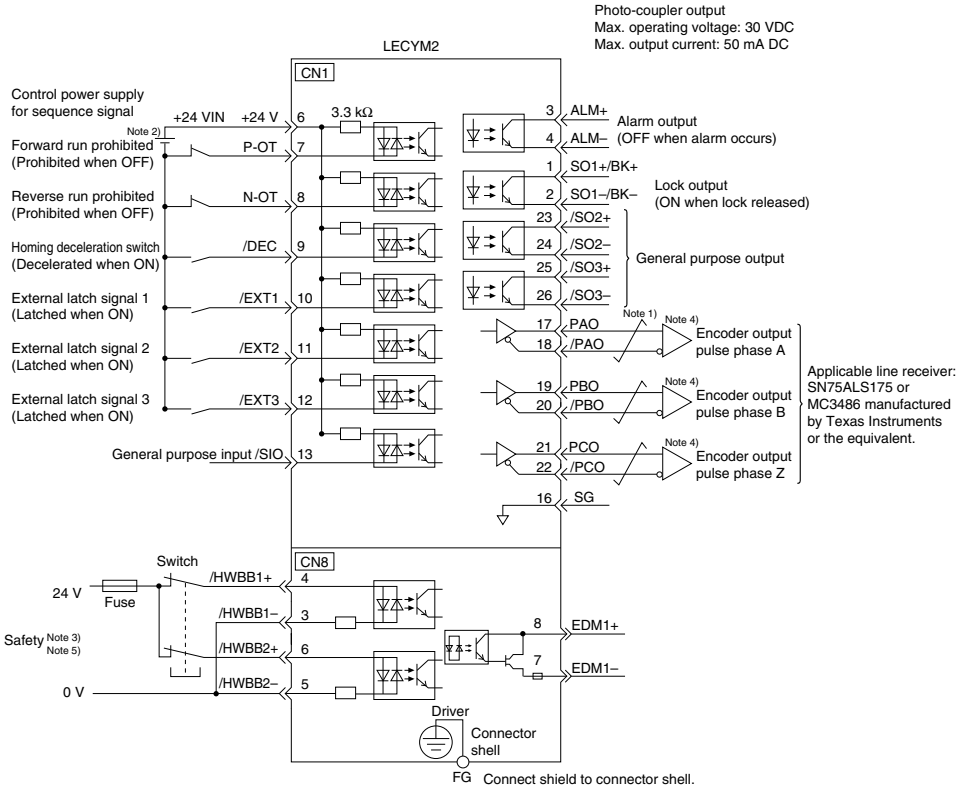
Terminal name	Function	Details
U	Servo motor power (U)	Connect to motor cable (U, V, W).
V	Servo motor power (V)	
W	Servo motor power (W)	

Power Supply Wire Specifications

Item	Specifications
Applicable wire size	L1, L2, L3, L1C, L2C Single wire, Twisted wire, AWG14 (2.0 mm^2)
Stripped wire length	8 to 9 mm

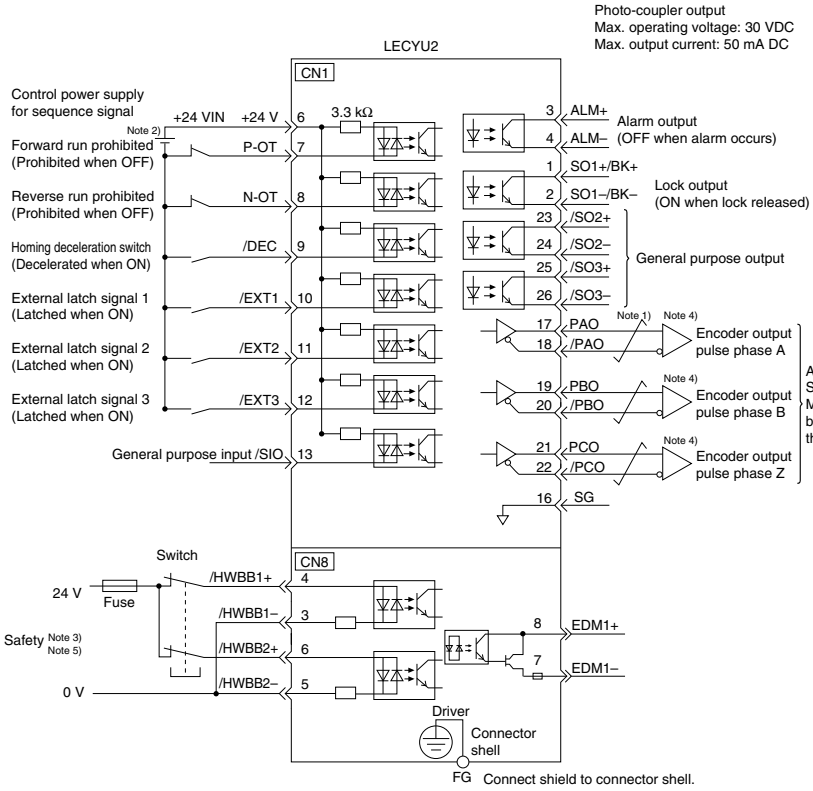


Control Signal Wiring Example: LECYM



Note 1) ≠ shows twisted-pair wires.
Note 2) The 24 VDC power supply is not included. Use a 24 VDC power supply with double insulation or reinforced insulation.
Note 3) When using the safety function, a safety function device must be connected to the wiring that is necessary to activate the safety function. Otherwise, the servo motor is not turned ON. When not using the safety function, use the driver with the Safety Jumper Connector (provided as an accessory) inserted into the CN8.
Note 4) Always use line receivers to receive the output signals.
* The functions allocated to the input signals /DEC, P-OT, N-OT, /EXT1, /EXT2 and /EXT3, and the output signals /SO1, /SO2 and /SO3 can be changed by setting the parameters.
Note 5) Compatible with the HWBB function (STO function (IEC61800-5-2)).

Control Signal Wiring Example: LECYU



Note 1) ≠ shows twisted-pair wires.

Note 2) The 24 VDC power supply is not included. Use a 24 VDC power supply with double insulation or reinforced insulation.

Note 3) When using the safety function, a safety function device must be connected to the wiring that is necessary to activate the safety function. Otherwise, the servo motor is not turned ON. When not using the safety function, use the driver with the Safety Jumper Connector (provided as an accessory) inserted into the CN8.

Note 4) Always use line receivers to receive the output signals.

* The functions allocated to the input signals /DEC, P-OT, N-OT, /EXT1, /EXT2 and /EXT3, and the output signals /SO1, /SO2 and /SO3 can be changed by setting the parameters.

Note 5) Compatible with the HWBB function (STO function (IEC61800-5-2)).

Options

Motor cable, Motor cable for lock option, Encoder cable (LECYM/LECYU common)

LE − CY M − S 5 A − 5

Motor type

Y	AC servo motor

Cable description

M	Motor cable
B	Motor cable for lock option
E	Encoder cable (With battery case)

Cable type

S	Standard cable
R	Robotic cable

Cable length (L) [m]

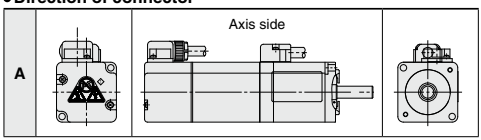
3	3
5	5
A	10
C	20

Motor capacity

5	100 W
7	200/400 W

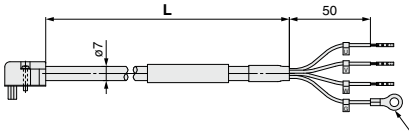
∗ For encoder cable, the suffix "–□" (Motor capacity) is not necessary.

Direction of connector

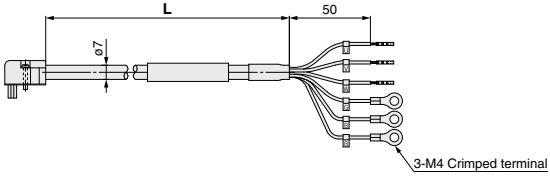


∗ The cable entry direction is axis side only.

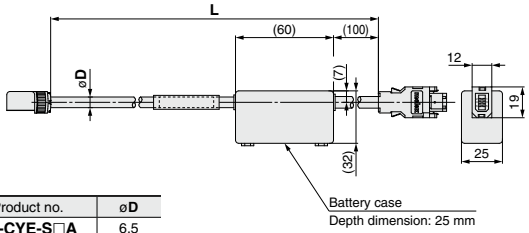
LE-CYM-□□A-□: Motor cable



LE-CYB-□□A-□: Motor cable for lock option



LE-CYE-□□A: Encoder cable



Product no.	øD
LE-CYE-S□A	6.5
LE-CYE-R□A	6.8

∗ LE-CYM-S□A-□ is JZSP-CSM0□-□□-E manufactured by YASKAWA CONTROLS CO., LTD.
LE-CYB-S□A-□ is JZSP-CSM1□-□□-E manufactured by YASKAWA CONTROLS CO., LTD.
LE-CYE-S□A is JZSP-CSP05-□□-E manufactured by YASKAWA CONTROLS CO., LTD.
LE-CYM-R□A-□ is JZSP-CSM2□-□□-E manufactured by YASKAWA CONTROLS CO., LTD.
LE-CYB-R□A-□ is JZSP-CSM3□-□□-E manufactured by YASKAWA CONTROLS CO., LTD.
LE-CYE-R□A is JZSP-CSP25-□□-E manufactured by YASKAWA CONTROLS CO., LTD.

Options

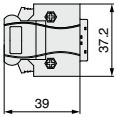
I/O connector (Without cable, Connector only)

LE − CYN A

Driver type

A	LECYM2, LECYU2

LE-CYNA



∗ LE-CYNA: 10126-3000PE (connector)/10326-52F0-008 (shell kit) manufactured by 3M Japan Limited or equivalent item.
∗ Conductor size: AWG24 to 30

I/O cable

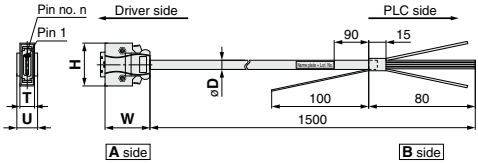
LEC − CSN A − 1

Driver type

A	LECYM2, LECYU2

Cable length (L) [m]

1	1.5



∗ LEC-CSNA-1: 10126-3000PE (connector)/10326-52F0-008 (shell kit) manufactured by 3M Japan Limited or equivalent item.
∗ Conductor size: AWG24

Wiring

LEC-CSNA-1: Pin no. 1 to 26

Connector pin no.		Pair no. of wire	Insulation color	Dot mark	Dot color
A side	1	1	Orange	▬	Red
	2			▬	Black
	3	2	Light gray	▬	Red
	4			▬	Black
	5	3	White	▬	Red
	6			▬	Black
	7	4	Yellow	▬	Red
	8			▬	Black
	9	5	Pink	▬	Red
	10			▬	Black

Connector pin no.		Pair no. of wire	Insulation color	Dot mark	Dot color
A side	11	6	Orange	▬▬	Red
	12			▬▬	Black
	13	7	Light gray	▬▬	Red
	14			▬▬	Black
	15	8	White	▬▬	Red
	16			▬▬	Black
	17	9	Yellow	▬▬	Red
	18			▬▬	Black
	19	10	Pink	▬▬	Red
	20			▬▬	Black

Connector pin no.		Pair no. of wire	Insulation color	Dot mark	Dot color
A side	21	11	Orange	▬▬▬	Red
	22			▬▬▬	Black
	23	12	Light gray	▬▬▬	Red
	24			▬▬▬	Black
	25	13	White	▬▬▬	Red
	26			▬▬▬	Black

Cable O.D.

Product no.	**øD**
LEC-CSNA-1	11.1

Dimensions/Pin No.

Product no.	**W**	**H**	**T**	**U**	Pin no. n
LEC-CSNA-1	39	37.2	12.7	14	14

Options

MECHATROLINK cable type

LEC−CY M −1

Motor type

Y	AC servo motor

Cable description

M	MECHATROLINK-Ⅱ cable
U	MECHATROLINK-Ⅲ cable

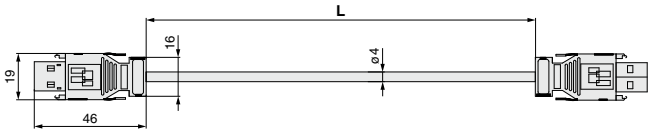
Cable length (L)

L*	0.2 m
J	0.5 m
1	1 m
3	3 m

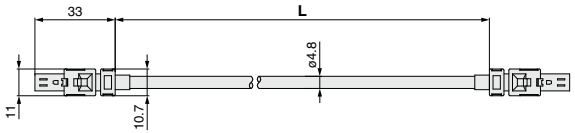
* Not available for the MECHATROLINK-Ⅱ cable.

* LEC-CYM-□ is JEPMC-W6002-□□-E manufactured by YASKAWA CONTROLS CO., LTD.
* LEC-CYU-□ is JEPMC-W6012-□□-E manufactured by YASKAWA CONTROLS CO., LTD.

MECHATROLINK-Ⅱ cable



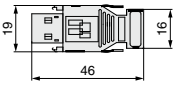
MECHATROLINK-Ⅲ cable



Terminating connector for MECHATROLINK-Ⅱ

LEC−CYRM

* LEC-CYRM is JEPMC-W6022-E manufactured by YASKAWA CONTROLS CO., LTD.



Options

LECYM2 LECYU2
Drivers

USB cable

PC

Setup software (SigmaWin+™) (LECYM/LECYU common)

∗ Please download the SigmaWin+™ via our website.
SigmaWin+™ is a registered trademark or trademark of YASKAWA Electric Corporation.

Adjustment, waveform display, parameter read/write, and test operation can be performed upon a PC.

Compatible PC

When using setup software (SigmaWin+™), use an IBM PC/AT compatible PC that meets the following operating conditions.

Hardware Requirements

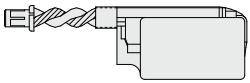
Equipment		Setup software (SigmaWin+™)
PC Note 1) 2) 3) 4)	OS	Windows® XP Note 5), Windows Vista®, Windows® 7 (32-bit/64-bit)
	Available HD space	350 MB or more (When the software is installed, 400 MB or more is recommended.)
	Communication interface	Use USB port.
Display		XVGA monitor (1024 x 768 or more, "The small font is used.") 256 color or more (65536 color or more is recommended.) The connectable with the above PC
Keyboard		The connectable with the above PC
Mouse		The connectable with the above PC
Printer		The connectable with the above PC
USB cable		LEC-JZ-CVUSB Note 6)
Other		Adobe Reader Ver. 5.0 or higher (∗ Except Ver. 6.0)

Note 1) Windows, Windows Vista®, Windows® 7 are registered trademarks of Microsoft Corporation in the United States and/or other countries.
Note 2) On some PCs, this software may not run properly.
Note 3) Not compatible with 64-bit Windows® XP and 64-bit Windows Vista®.
Note 4) For Windows® XP, please use it by the administrator authority (When installing and using it.).
Note 5) In PC that uses the program to correct the problem of HotfixQ328310, it is likely to fail in the installation. In that case, please use the program to correct the problem of HotfixQ329623.
Note 6) Order USB cable separately.

Battery (LECYM/LECYU common)

LEC−JZ−CVBAT

∗ JZSP-BA01 manufactured by YASKAWA CONTROLS CO., LTD.



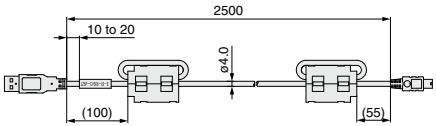
Battery for replacement.
Absolute position data is maintained by installing the battery to the battery case of the encoder cable.

USB cable (2.5 m)

LEC−JZ−CVUSB

∗ JZSP-CVS06-02-E manufactured by YASKAWA CONTROLS CO., LTD.

Cable for connecting PC and driver when using the setup software (SigmaWin+™).
Do not use any cable other than this cable.

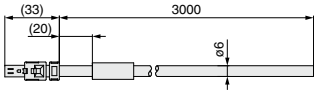


Cable for safety function device (3 m)

LEC−JZ−CVSAF

∗ JZSP-CVH03-03-E manufactured by YASKAWA CONTROLS CO., LTD.

Cable for connecting the driver and device when using the safety function.
Do not use any cable other than this cable.



LECYM/LECYU Series
AC Servo Motor Driver/ Specific Product Precautions 1

Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 8 for Electric Actuator Precautions.

Design/Selection

⚠Warning

1. Use the specified voltage.
If the applied voltage is higher than the specified voltage, malfunction and damage to the driver may result. If the applied voltage is lower than the specified voltage, there is a possibility that the load cannot be moved due to internal voltage drop. Check the operating voltage prior to start. Also, confirm that the operating voltage does not drop below the specified voltage during operation.

2. Do not use the products outside the specifications.
Otherwise, fire, malfunction or damage to the driver/actuator can result. Check the specifications before use.

3. Install an emergency stop circuit.
Install an emergency stop outside the enclosure in easy reach to the operator so that the operator can stop the system operation immediately and intercept the power supply.

4. To prevent danger and damage due to a breakdown or malfunction of these products, which may occur at a certain probability, a backup system should be arranged in advance by using a multiple-layered structure or by making a fail-safe equipment design etc.

5. If there is a risk of fire or personal injury due to abnormal heat generation, sparking, smoke generated by the product, etc., cut off the power supply from this product and the system immediately.

Handling

⚠Warning

1. Never touch the inside of the driver and its peripheral devices.
Otherwise, electric shock or failure can result.

2. Do not operate or set up this equipment with wet hands.
Otherwise, electric shock can result.

3. Do not use a product that is damaged or missing any components.
Electric shock, fire or injury can result.

4. Use only the specified combination between the electric actuator and driver.
Otherwise, it may cause damage to the driver or to the other equipment.

5. Be careful not to touch, get caught or hit by the workpiece while the actuator is moving.
An injury can result.

6. Do not connect the power supply or power up the product until it is confirmed that the workpiece can be moved safely within the area that can be reached by the workpiece.
Otherwise, the movement of the workpiece may cause an accident.

7. Do not touch the product when it is energized and for some time after the power has been disconnected, as it is very hot.
Otherwise, it may cause burns due to the high temperature.

8. Check the voltage using a tester at least 5 minutes after power-off when performing installation, wiring and maintenance.
Otherwise, electric shock, fire or injury can result.

Handling

⚠Warning

9. Static electricity may cause a malfunction or damage the driver. Do not touch the driver while power is supplied to it.
Take sufficient safety measures to eliminate static electricity when it is necessary to touch the driver for maintenance.

10. Do not use the products in an area where they could be exposed to dust, metallic powder, machining chips or splashes of water, oil or chemicals.
Otherwise, a failure or malfunction can result.

11. Do not use the products in a magnetic field.
Otherwise, a malfunction or failure can result.

12. Do not use the products in an environment where flammable, explosive or corrosive gases, liquids or other substances are present.
Otherwise, fire, explosion or corrosion can result.

13. Avoid heat radiation from strong heat sources, such as direct sunlight or a hot furnace.
Otherwise, it will cause a failure to the driver or its peripheral devices.

14. Do not use the products in an environment with cyclic temperature changes.
Otherwise, it will cause a failure to the driver or its peripheral devices.

15. Do not use the products in an environment where surges are generated.
Devices (solenoid type lifters, high frequency induction furnaces, motors, etc.) that generate a large amount of surge around the product may lead to deterioration or damage to the internal circuits of the products. Avoid supplies of surge generation and crossed lines.

16. Do not install these products in a place subject to vibration and impact.
Otherwise, a malfunction or failure can result.

17. When a surge generating load such as a relay or solenoid valve is directly driven, use a product that incorporates a surge absorption element.

Mounting

⚠Warning

1. Install the driver and its peripheral devices on fireproof material.
Direct installation on or near flammable material may cause fire.

2. Do not install these products in a place subject to vibration and impact.
Otherwise, a malfunction or failure can result.

3. The driver should be mounted on a vertical wall in a vertical direction.
Also, do not cover the driver's suction/exhaust ports.

4. Install the driver and its peripheral devices on a flat surface.
If the mounting surface is not flat or uneven, excessive force may be applied to the housing and other parts resulting in a malfunction.

AC Servo Motor Driver/ Specific Product Precautions 2

Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 8 for Electric Actuator Precautions.

Power Supply

⚠Caution

1. Use a power supply with low noise between lines and between power and ground.
In cases where noise is high, use an isolation transformer.

2. Take appropriate measures to prevent surges from lightning. Ground the surge absorber for lightning separately from the grounding of the driver and its peripheral devices.

Wiring

⚠Warning

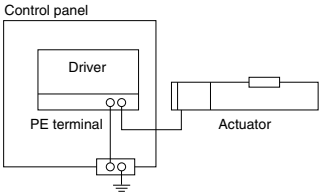
1. The driver will be damaged if a commercial power supply (100V/200V) is added to the driver's servo motor power (U, V, W). Be sure to check wiring such as wiring mistakes when the power supply is turned on.

2. Connect the ends of the U, V, W wires from the motor cable correctly to the phases (U, V, W) of the servo motor power. If these wires do not match up, it is unable to control the servo motor.

Grounding

⚠Warning

1. For grounding actuator, connect the copper wire of the actuator to the driver's protective earth (PE) terminal and connect the copper wire of the driver to the earth via the control panel's protective earth (PE) terminal. Do not connect them directly to the control panel's protective earth (PE) terminal.



2. In the unlikely event that malfunction is caused by the ground, it may be disconnected.

Maintenance

⚠Warning

1. Perform maintenance checks periodically.
Confirm wiring and screws are not loose.
Loose screws or wires may cause unexpected malfunction.

2. Conduct an appropriate functional inspection and test after completed maintenance.
In case of any abnormalities (if the actuator does not move or the equipment does not operate properly etc.), stop the operation of the system.
Otherwise, unexpected malfunction may occur and safety cannot be assured.
Conduct a test of the emergency stop to confirm the safety of the equipment.

3. Do not disassemble, modify or repair the driver or its peripheral devices.

4. Do not put anything conductive or flammable inside the driver.
Otherwise, fire can result.

5. Do not conduct an insulation resistance test or insulation withstand voltage test.

6. Reserve sufficient space for maintenance.
Design the system so that it allows required space for maintenance.